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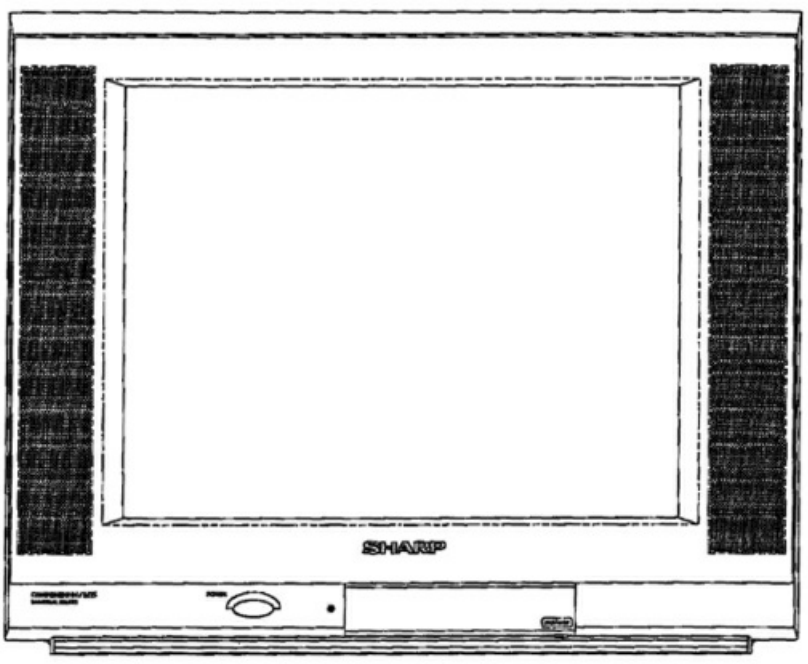
SHARP 20F550 SERVICE MANUAL



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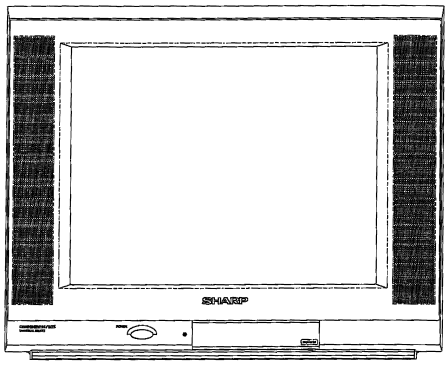
SHARP SERVICE MANUAL



COLOR TELEVISION

Chassis No. GA-4

MODEL 20F550

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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ELECTRICAL SPECIFICATIONS

POWER INPUT ..... AC 120 V, 60 Hz
POWER RATING 88W
PICTURE SIZE ..... 1,239 cm^2 (192sq inch)
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... QFP/UNI-B1 Electrostatic
INTERMEDIATE FREQUENCIES
  Picture IF Carrier Frequency ..... 45.75 MHz
  Sound IF Carrier Frequency ..... 41.25 MHz
  Color Sub-Carrier Frequency ..... 42.17 MHz (Nominal)
AUDIO POWER
  OUTPUT RATING ..... 2.5 W(RMS) x 2pcs
SPEAKER
  SIZE ..... 12 x 5 cm, 2pcs
  VOICE COIL IMPEDANCE ..... 16 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
  VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
  VHF-Channels ..... 2 thru 13
  UHF-Channels ..... 14 thru 69
  CATV Channels ..... 1 thru 125
  (EIA, Channel Plan U.S.A.)

Specifications are subject to change without prior notice.

SHARP CORPORATION

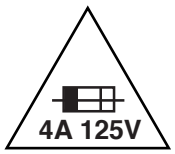
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:**

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.



CAUTION: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A-125V FUSE.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value –no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION

(Continued)

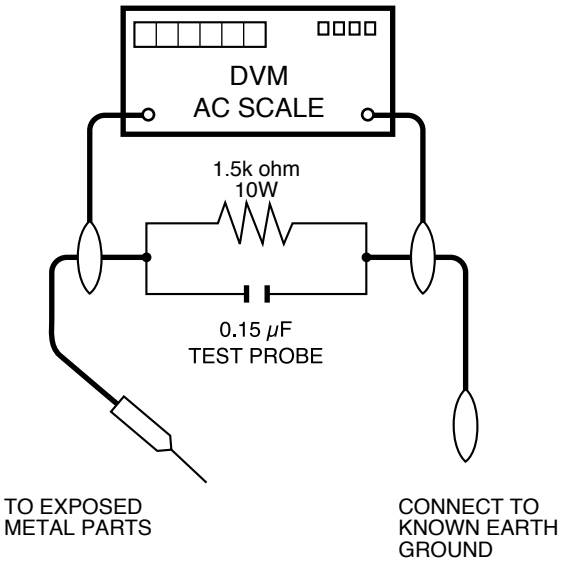
BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.
  All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



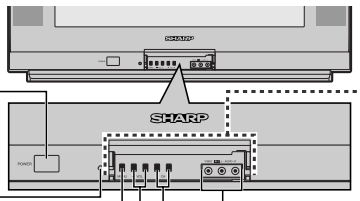
SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

LOCATION OF USER'S CONTROL

Front Panel



POWER
Press → On.
Press again → Off.

REMOTE CONTROL SENSOR

MENU
Press → Accesses MAIN MENU.
Press again → Exits MAIN MENU.

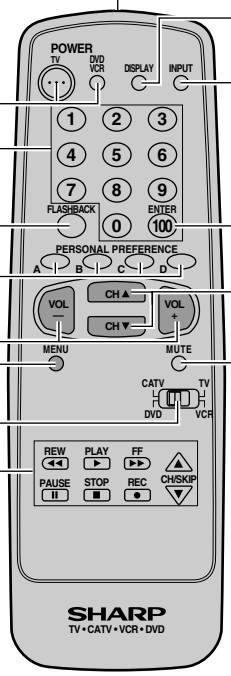
VOLUME UP/DOWN
(+) Increases sound.
(–) Decreases sound.

INSIDE DOOR

VIDEO/AUDIO IN 2 TERMINALS

CHANNEL UP/DOWN
(▲) Selects next higher channel
(▼) Selects next lower channel

Basic Remote Control Functions



POWER
Press → On.
Press again → Off.

REMOTE KEYPAD
Accesses any channel from keypad.

FLASHBACK
Returns to previous channel.

PERSONAL PREFERENCE
With the Personal Preference buttons, you can program your favorite programs by using the 4 categories A, B, C and D. The channels can be accessed quickly by using these buttons.

VOLUME UP/DOWN
(+) Increases sound.
(–) Decreases sound.
• Changes or selects the TV adjustments on On-Screen Display.

MENU
Press → Accesses MAIN MENU.
Press again → Exits MAIN MENU.

CATV/DVD-TV/VCR MODE SELECT SWITCH
In TV/VCR position, signals sent will be for TV and VCR control.
In CATV/DVD position, signals sent will be for cable TV converter and DVD control.

DVD/VCR CONTROL

Infrared Transmitter Window

DISPLAY
Press → Displays receiving channel for 4 seconds.
Press again → Removes display.
• Temporarily displays receiving channel when in Closed Caption mode.

INPUT
Press → Switches to external video INPUT 1 mode.
Press twice → Switches to external video INPUT 2 mode.
Press 3 times → Switches to external video INPUT 3 mode or COMPONENT mode.
Press 4 times → Switches back to the original TV mode.

ENTER
Used in some instances where a Cable Converter Box requires an "enter" command after selecting channels, when using the REMOTE KEYPAD button.

CHANNEL UP/DOWN
(▲) Selects next higher channel.
(▼) Selects next lower channel.
• Moves the " ● " mark on the MENU screens.

MUTE
Press → Mutes sound.
Press again → Restores sound.
• When sound is muted, CLOSED CAPTION appears if available.

Note:

- The above shaded buttons on the Remote Control glow in the dark. To use the glow-in-the-dark display on the remote control, place it under a fluorescent light or other lighting.
- The phosphorescent material contains no radioactive or toxic material, so it is safe to use.
- The degree of illumination will vary depending on the strength of lighting used.
- The degree of illumination will decrease with time and depending on the temperature.
- The time needed to charge the phosphorescent display will vary depending on the surrounding lighting.
- Sunlight and fluorescent lighting are the most effective when charging the display.
- The TV set and remote control illustrations and the on-screen displays in this manual may differ from their actual appearance.

INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.
(2) Before performing adjustments, the TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to P603 pin3 and make sure that the voltmeter reads 19.8 ±1.1V.
5. Apply external 25.5V DC at P603 pin3 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between P603 pin1 and P603 pin2. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK

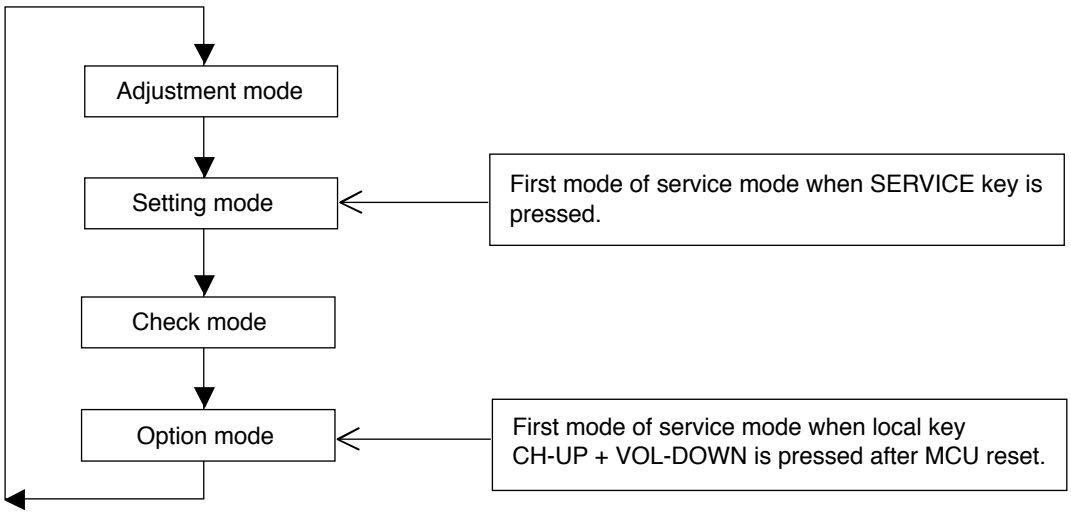
High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and set Y-mute ON by using Service R/C.
4. The voltage should be approximately 28.7kV (at zero beam).
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

SERVICE MODE

Service Mode Overview

1. Service mode is entered by SERVICE key input or CH-UP +VOL-DOWN input during reset.
2. Service mode is cleared by entering SERVICE key command during service mode.
3. If key input port (SERVICE) input is LOW, then it is in service mode.
4. During key input port (SERVICE) input is LOW, clearing service mode by key input SERVICE is disabled.
5. Service mode can be switched to 4 modes as follows by key input MENU;


Adjustment mode
Setting mode
First mode of service mode when SERVICE key is pressed.
Check mode
Option mode
First mode of service mode when local key CH-UP + VOL-DOWN is pressed after MCU reset.

6. AFT processing is disabled during service mode. PLL setting data is set to fo data.
7. All user data are set to default during service mode. FAO and SPEAKER user settings are off and on respectively in service mode. Energy Save is off.
8. Sleep timer, View timer, On timer and OFF timer are inactivated in Service mode.
9. Sound is muting in service mode except at Adjustment Items V20, M01, M03, M04, M05, and M06.

ADJUSTMENT METHOD

Caution: to get into the service mode, one of the ways is press direct key for service items. the other ways is short the main chassis JA301 and JA410

There is three stage of Service Mode data
First stage data from V01 ~ M06
to go into second stage of service mode data, press MENU key
Second stage data from F01 ~ F71
to go into third stage of service mode data, press MENU key
Third stage data from 001 ~ 030

Below is the contents of these data

First Stage

Data	Service Mode	Function	Range	Default Data
V01	SUB-PICTURE	CONTRAST	0~127	127
V02	SUB-TINT	TINT	0~127	64
V03	SUB-COLOR	COLOR	0~127	64
V04	SUB-BRIGHT	BRIGHT	0~255	128
V05	SUB-SHARP	VIDEO-TONE	0~63	32
V06	V-SHIFT	V-SHIFT	0~7	4
V07	H-SHIFT	H-PHASE	0~31	16
V08	RF-AGC	RF-DELAY	0~127	127
V09	V-SIZE	V-SIZE	0~63	32
V10	PIF-VCO	VIF-VCO	0~63	32
V11	R-CUTOFF	R-CUTOFF	0~255	127
V12	G-CUTOFF	G-CUTOFF	0~255	127
V13	B-CUTOFF	B-CUTOFF	0~255	127
V14	R-DRIVE	R-DRIVE	0~127	64
V15	B-DRIVE	B-DRIVE	0~127	64
V16	SUB-COLOR(YUV)	COLOR	0~127	64
V17	SUB-TINT(YUV)	BASEBAND-TINT	0~127	64
V18	CC-POS	CC-POS	0~255	32
V19	SCREEN CUT OFF	CUT OFF	0~2	0
V20	SUB-VOL	A-ATT	0~127	127
V21	H-VCO	H-VCO	0~7	4
M01	MTS-ATT	ATT (MTS)	0~15	10
M02	MTS-VCO	VCO (MTS)	0~63	32
M03	MTS-FILTER	FILTER (MTS)	0~63	28
M04	MTS-WIDEBAND	WIDEBAND (MTS)	0~63	27
M05	MTS-SPECTRAL	SPECTRAL (MTS)	0~63	32
M06	SUB-VOL	VOL (MTS)	0~63	63

Auto Adjustment Item
1. H-VCO
2. RF-AGC
3. PIF-VCO

■ SELF ADJUSTMENT

H-VCO

1. When there is H-VCO self-adjustment key input for adjustment item H-VCO, self-adjustment is performed.
2. H-FREE(1chip) is set to 1.
3. H-OUT is set by intelligent monitor output.
4. IM input is set as TIM input.
5. H-VCO(1chip) data is changed so that the number of input pulse is 125 inside 8ms interval.
6. When adjustment completed, OSD display and H-VCO self-adjustment status data of EEPROM are updated.
7. H-FREE(1chip), intelligent monitor output and IM input mode are recovered.

RF-AGC

1. When there is RF-AGC self-adjustment key input for adjustment item RF-AGC, self-adjustment is performed.
2. AGC-OUT is set by intelligent monitor output.
3. IM input is set as AD input.
4. By decreasing RF-AGC (1chip) data from current RF-AGC adjustment value to 0, AFT input voltage becomes the maximum setting value.
5. Increase RF-AGC(1chip) data, when AFT input voltage is at (max. 0.3V) point, adjustment is completed.
6. When adjustment completed, OSD display and RF-AGC self-adjustment status data of EEPROM are updated.
7. Intelligent monitor output and IM input mode are recovered.

PIF-VCO

1. When there is PIF-VCO self-adjustment key input for adjustment item PIF-VCO, self-adjustment is performed.
2. VIF-DEF(1chip) is set to 1.
3. AFC is set by intelligent monitor output.
4. IM input is set as AD input.
5. VIF-VCO(1chip) data is changed so that input voltage becomes 2.5V.
6. When adjustment completed, OSD display and PIF-VCO self-adjustment status data of EEPROM are updated.
7. VIF-DEF(1chip), intelligent monitor output and IM input mode are recovered.

Setting Mode Items

No.	Item Name	IC	Register	Range	Default
F01	VIDEO TONE -GAIN (TV)	1 Chips	V-TONE	0/1	0
F02	VIDEO TONE -GAIN (AV)	1 Chips	V-TONE	0/1	0
F03	VIDEO TONE -GAIN (S-AV)	1 Chips	V-TONE	0/1	0
F04	VIDEO TONE -GAIN(YUV)	1 Chips	V-TONE	0/1	0
F05	ABCL	1 Chips	ABCL	0/1	0
F06	BS	1 Chips	BS-OFF	0/1	0
F07	ABCL-G	1 Chips	ABCL-G	0/1	0
F08	SHP-AV	OFFSET	VIDEO-TONE(OFFSET)	-16~+16	0
F09	SHP-SAV	OFFSET	VIDEO-TONE(OFFSET)	-16~+16	0
F10	SHP-YUV	OFFSET	VIDEO-TONE(OFFSET)	-16~+16	0
F11	RGB-CLIP	1 Chips	EXTRGB-CLIP	0/1	0
F12	E-SAVE	OFFSET	CONTRAST(OFFSET)	0~63	30
F13	FAO-VOL	1 Chips	A-ATT	0~127	120
F14	PIF-G	1 Chips	VIF-GAIN	0~7	4
F15	Y-DELAY(TV)	1 Chips	Y-DELAY	0~7	0
F16	Y-DELAY(AV)	1 Chips	Y-DELAY	0~7	0
F17	Y-DELAY(SAV)	1 Chips	Y-DELAY	0~7	0
F18	Y-DELAY(YUV)	1 Chips	Y-DELAY	0~7	0
F19	TINT-AV	OFFSET	TINT(OFFSET)	-32~+32	0
F20	TINT-SAV	OFFSET	TINT(OFFSET)	-32~+32	0
F21	COL-AV	OFFSET	COLOR(OFFSET)	-32~+32	0
F22	COL-SAV	OFFSET	COLOR(OFFSET)	-32~+32	0
F23	R-DRI(R2)	OFFSET	R-DRI(OFFSET)	-32~+32	0
F24	R-DRI(R)	OFFSET	R-DRI(OFFSET)	-32~+32	0
F25	R-DRI(B)	OFFSET	R-DRI(OFFSET)	-32~+32	0
F26	B-DRI(R2)	OFFSET	B-DRI(OFFSET)	-32~+32	0
F27	B-DRI(R)	OFFSET	B-DRI(OFFSET)	-32~+32	0
F28	B-DRI(B)	OFFSET	B-DRI(OFFSET)	-32~+32	0
F29	V-FREE	1 Chips	V-FREE	0/1	0
F30	GAMMA	1 Chips	GAMMA	0~3	0
F31	TRAP(TV)	1 Chips	TRAP-FINE	0~3	2
F32	TRAP(AV)	1 Chips	TRAP-FINE	0~3	2
F33	H-FREE	1 Chips	H-FREE	0/1	0
F34	1W(TV)	1 Chips	V.WINDOW	0/1	0
F35	1W(AV)	1 Chips	V.WINDOW	0/1	0
F36	YLPF	1 Chips	YSW-LPF	0/1	1
F37	BS-D	1 Chips	BS-DISCHARGE	0~3	0
F38	BS-C	1 Chips	BS-CHARGE	0~3	0
F39	SL(TV)	1 Chips	S-SLICE DOWN	0~3	0
F40	SL(AV)	1 Chips	S-SLICE DOWN	0~3	0
F41	SL(SAV)	1 Chips	S-SLICE DOWN	0~3	0
F42	SL(YUV)	1 Chips	S-SLICE DOWN	0~3	0
F43	AFC2	1 Chips	AFC2-G	0/1	0
F44	VD(TV)	1 Chips	VSYNC-DET	0/1	0
F45	VD(AV)	1 Chips	VSYNC-DET	0/1	0
F46	AS(TV)	1 Chips	AUTO-SLICE	0/1	0
F47	AS(AV)	1 Chips	AUTO-SLICE	0/1	0
F48	AS(SAV)	1 Chips	AUTO-SLICE	0/1	0
F49	AS(YUV)	1 Chips	AUTO-SLICE	0/1	0
F50	FBP(TV)	1 Chips	FBP VTH	0/1	0
F51	FBP(AV)	1 Chips	FBP VTH	0/1	0
F52	FBP(SAV)	1 Chips	FBP VTH	0/1	0
F53	FBP(YUV)	1 Chips	FBP VTH	0/1	0
F54	C.CLIP LEVEL	1 Chips	C.CLIP LEVEL	0/1	0

Setting Mode Items (Continued)

No.	Item Name	IC	Register	Range	Default
F55	PSW	MTS	PSW	0/1	0
F56	FAO-VOL	MTS	VOL	0~63	60
F57	CP	PLL	CHARGE PUMP	0/1	0
F58	CC LEVEL	MICON	CC LEVEL	0/1	0
F59	OSD POS	MICON	OSD POS	0/1	0
F60	OFFSET-ADJ-COL	1 Chips	COLOR	-32~+32	0
F61	OFFSET-ADJ-TINT	1 Chips	TINT	-32~+32	0
F62	OFFSET-ADJ-TINT-YUV	1 Chips	BASEBAND-TINT	-32~+32	0
F63	WAIT MD TIMER	1 Chips	SLOW MODE	0/1	1
F64	R-CUT-YUV	1 Chips	R-CUT(OFFSET)	-63~+63	0
F65	G-CUT-YUV	1 Chips	G-CUT(OFFSET)	-63~+63	0
F66	B-CUT-YUV	1 Chips	B-CUT(OFFSET)	-63~+63	0
F67	R-DRI-YUV	1 Chips	R-DRI(OFFSET)	-63~+63	0
F68	B-DRI-YUV	1 Chips	B-DRI(OFFSET)	-63~+63	0
F69	CONTRAST OFFSET	1 Chips	CONTRAST(OFFSET)	-63~+63	0
F70	BRIGHTNESS OFFSET	1 Chips	BRIGHT(OFFSET)	-63~+63	0
F71	AV2 BRIGHTNESS OFFSET	1 Chips	BRIGHT(OFFSET)	-15~+15	7

Option Mode Items

No	OPTION FUNCTION	0	1	Default Data
001	DEMO	Without DEMO	With DEMO	1
002	DOWNLOAD	Without V-CHIP OP	With V-CHIP OP	1
003	V-CHIP	Without V-CHIP	With V-CHIP	1
004	SPEAKER	Without SPEAKER	With SPEAKER	1
005	FAO	Without FAO	With FAO	1
006	P.PREF	Without P.REF	With P.REF	1
007	UNIV+	Without UNIV+	With UNIV+	1
008	VIEW TIMER	Without VIEW TIMER	With VIEW TIMER	1
009	EZ-SETUP	EZ-SETUP	AUTO PRESET	0
010	PON-CH	Without POWER-ON	With POWER-ON	0
011	FAV-COL	FAV-COL	COL-TEMP	1
012	COMPONENT	Without COMPONENT	With COMPONENT	1
013	AV	Without AV	With AV	1
014	AV2	AV1 system	AV2 system	1
015	MTS	Without MTS	With MTS	1
016	TONE-CTRL	Without S-ADJ	With S-ADJ	1
017	AUTO-OFF	Without AUTO-OFF	With AUTO-OFF	1
018	INIT-LANG	ENGLISH	SPANISH	0
019	SETUP-FLAG	NO SET UP	AUTO SET UP	1
020	AV-FR	"0"=NO AV "1"=REAR "2"=FRONT "3"=REAR & FRONT		3
021	AV3/S-IN	Without AV3/S-IN	With AV3/S-IN	0
022	COMB	Without COMB	With COMB	0
023	AUTO-INPUT	Without AUTO-INPUT	With AUTO-INPUT	1
024	CLOCK	Without CLOCK	With CLOCK	0
025	LED	SEMEX MODEL	SPC MODEL	0
026	FLAT	Not FLAT MODEL	FLAT MODEL	1
027	BASS BOOST	Without BASS BOOST	With BASS BOOST	0
028	DSE	Without DSE	With DSE	0
029	SRS	Without SRS	With SRS	0
030	WHITE-OUT	Without WHITE-OUT	With WHITE-OUT	0

Check Mode

Micron mask version, software version and ROM correction function status are displayed in check mode.

Adjustment Mode Items

No.	Item Name	IC	Register	Range	Default
V01	SUB-PICTURE	1 Chip	CONTRAST	0~127	127
V02	SUB-TINT	1 Chip	TINT	0~127	64
V03	SUB-COLOR	1 Chip	COLOR	0~127	64
V04	SUB-BRIGHT	1 Chip	BRIGHT	0~255	128
V05	SUB-SHARP	1 Chip	VIDEO-TONE	0~63	32
V06	V-SHIFT	1 Chip	V-SHIFT	0~7	4
V07	H-SHIFT	1 Chip	H-PHASE	0~31	16
V08	RF-AGC	1 Chip	RF-DELAY	0~127	127
V09	V-SIZE	1 Chip	V-SIZE	0~63	32
V10	PIF-VCO	1 Chip	VIF-VCO	0~63	32
V11	R-CUTOFF	1 Chip	R-CUTOFF	0~255	127
V12	G-CUTOFF	1 Chip	G-CUTOFF	0~255	127
V13	B-CUTOFF	1 Chip	B-CUTOFF	0~255	127
V14	R-DRIVE	1 Chip	R-DRIVE	0~127	64
V15	B-DRIVE	1 Chip	B-DRIVE	0~127	64
V16	SUB-COLOR(YUV)	1 Chip	COLOR	0~127	64
V17	SUB-TINT(YUV)	1 Chip	BASEBAND-TINT	0~127	64
V18	CC-POS	MICON	CC-POS	0~255	32
V19	SCREEN CUT OFF	1 Chip	CUT OFF	0~2	0
V20	SUB-VOL	1 Chip	A-ATT	0~127	127
V21	H-VCO	1 Chip	H-VCO	0~7	4
M01	MTS-ATT	MTS	ATT (MTS)	0~15	10
M02	MTS-VCO	MTS	VCO (MTS)	0~63	32
M03	MTS-FILTER	MTS	FILTER (MTS)	0~63	28
M04	MTS-WIDEBAND	MTS	WIDEBAND (MTS)	0~63	27
M05	MTS-SPECTRAL	MTS	SPECTRAL (MTS)	0~63	32
M06	SUB-VOL	MTS	VOL (MTS)	0~63	63

Second Stage

Data	Service Mode	Function	Range	Default Data
F01	VIDEO TONE -GAIN (TV)	V-TONE	0/1	0
F02	VIDEO TONE -GAIN (AV)	V-TONE	0/1	0
F03	VIDEO TONE -GAIN (S-AV)	V-TONE	0/1	0
F04	VIDEO TONE -GAIN(YUV)	V-TONE	0/1	0
F05	ABCL	ABCL	0/1	0
F06	BS	BS-OFF	0/1	0
F07	ABCL-G	ABCL-G	0/1	0
F08	SHP-AV	VIDEO-TONE(OFFSET)	-16~+16	0
F09	SHP-SAV	VIDEO-TONE(OFFSET)	-16~+16	0
F10	SHP-YUV	VIDEO-TONE(OFFSET)	-16~+16	0
F11	RGB-CLIP	EXTRGB-CLIP	0/1	0
F12	E-SAVE	CONTRAST(OFFSET)	0~63	30
F13	FAO-VOL	A-ATT	0~127	120
F14	PIF-G	VIF-GAIN	0~7	4
F15	Y-DELAY(TV)	Y-DELAY	0~7	0
F16	Y-DELAY(AV)	Y-DELAY	0~7	0
F17	Y-DELAY(SAV)	Y-DELAY	0~7	0
F18	Y-DELAY(YUV)	Y-DELAY	0~7	0
F19	TINT-AV	TINT(OFFSET)	-32~+32	0
F20	TINT-SAV	TINT(OFFSET)	-32~+32	0
F21	COL-AV	COLOR(OFFSET)	-32~+32	0
F22	COL-SAV	COLOR(OFFSET)	-32~+32	0
F23	R-DRI(R2)	R-DRI(OFFSET)	-32~+32	0
F24	R-DRI(R)	R-DRI(OFFSET)	-32~+32	0
F25	R-DRI(B)	R-DRI(OFFSET)	-32~+32	0
F26	B-DRI(R2)	B-DRI(OFFSET)	-32~+32	0
F27	B-DRI(R)	B-DRI(OFFSET)	-32~+32	0
F28	B-DRI(B)	B-DRI(OFFSET)	-32~+32	0
F29	V-FREE	V-FREE	0/1	0
F30	GAMMA	GAMMA	0~3	0
F31	TRAP(TV)	TRAP-FINE	0~3	2
F32	TRAP(AV)	TRAP-FINE	0~3	2
F33	H-FREE	H-FREE	0/1	0
F34	1W(TV)	V.WINDOW	0/1	0
F35	1W(AV)	V.WINDOW	0/1	0
F36	YLPF	YSW-LPF	0/1	1
F37	BS-D	BS-DISCHARGE	0~3	0
F38	BS-C	BS-CHARGE	0~3	0
F39	SL(TV)	S-SLICE DOWN	0~3	0
F40	SL(AV)	S-SLICE DOWN	0~3	0
F41	SL(SAV)	S-SLICE DOWN	0~3	0
F42	SL(YUV)	S-SLICE DOWN	0~3	0
F43	AFC2	AFC2-G	0/1	0
F44	VD(TV)	VSYNC-DET	0/1	0
F45	VD(AV)	VSYNC-DET	0/1	0
F46	AS(TV)	AUTO-SLICE	0/1	0
F47	AS(AV)	AUTO-SLICE	0/1	0
F48	AS(SAV)	AUTO-SLICE	0/1	0
F49	AS(YUV)	AUTO-SLICE	0/1	0
F50	FBP(TV)	FBP VTH	0/1	0
F51	FBP(AV)	FBP VTH	0/1	0
F52	FBP(SAV)	FBP VTH	0/1	0
F53	FBP(YUV)	FBP VTH	0/1	0
F54	C.CLIP LEVEL	C.CLIP LEVEL	0/1	0
F55	PSW	PSW	0/1	0
F56	FAO-VOL	VOL	0~63	60

Second Stage (Continued)

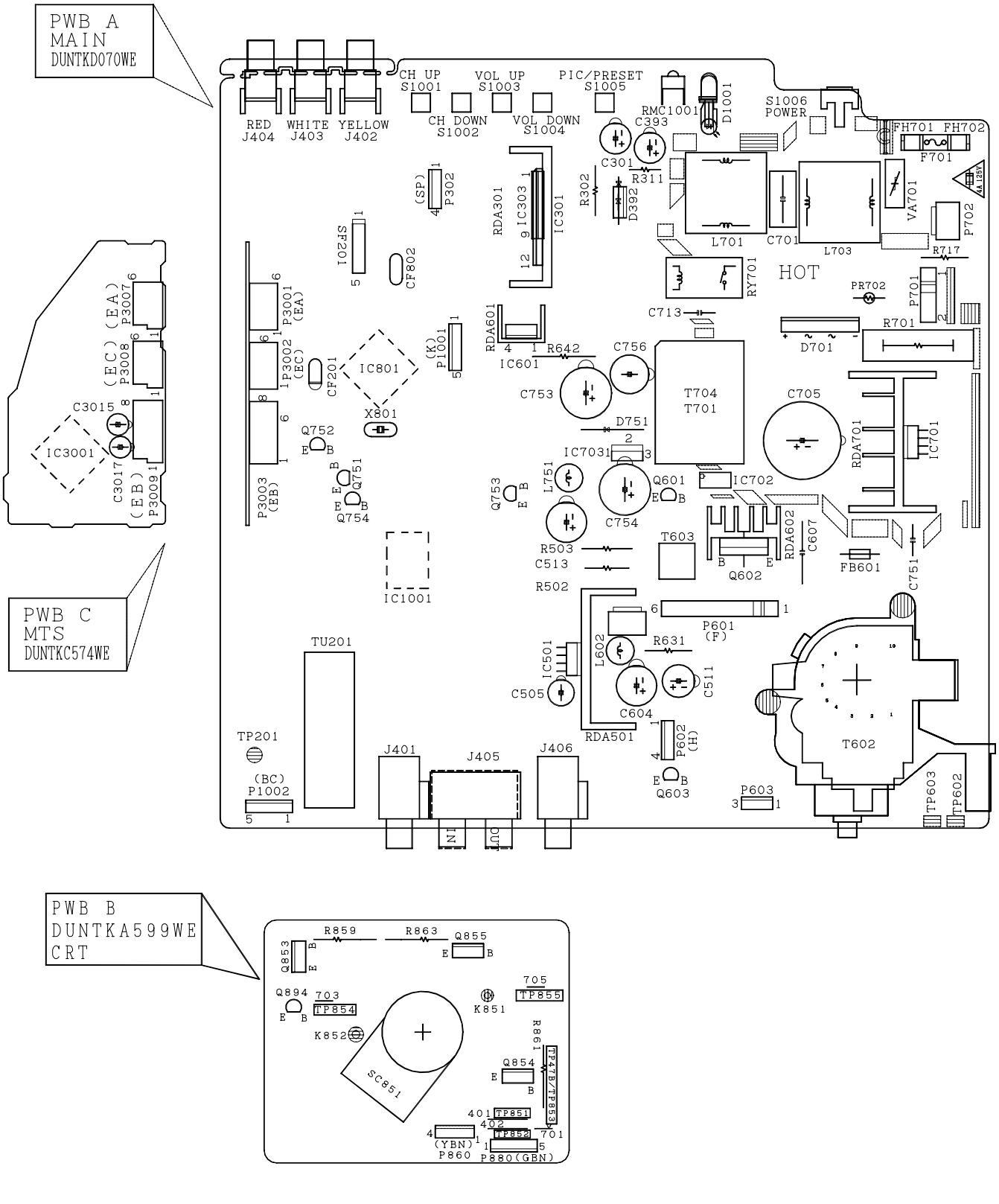
Data	Service Mode	Function	Range	Default Data
F57	CP	CHARGE PUMP	0/1	0
F58	CC LEVEL	CC LEVEL	0/1	0
F59	OSD POS	OSD POS	0/1	0
F60	OFFSET-ADJ-COL	COLOR	-32~+32	0
F61	OFFSET-ADJ-TINT	TINT	-32~+32	0
F62	OFFSET-ADJ-TINT-YUV	BASEBAND-TINT	-32~+32	0
F63	WAIT MD TIMER	SLOW MODE	0/1	1
F64	R-CUT-YUV	R-CUT(OFFSET)	-63~+63	0
F65	G-CUT-YUV	G-CUT(OFFSET)	-63~+63	0
F66	B-CUT-YUV	B-CUT(OFFSET)	-63~+63	0
F67	R-DRI-YUV	R-DRI(OFFSET)	-63~+63	0
F68	B-DRI-YUV	B-DRI(OFFSET)	-63~+63	0
F69	CONTRAST OFFSET	CONTRAST(OFFSET)	-63~+63	0
F70	BRIGHTNESS OFFSET	BRIGHT(OFFSET)	-63~+63	0
F71	AV2 BRIGHTNESS OFFSET	BRIGHT(OFFSET)	-15~+15	7

Third Stage

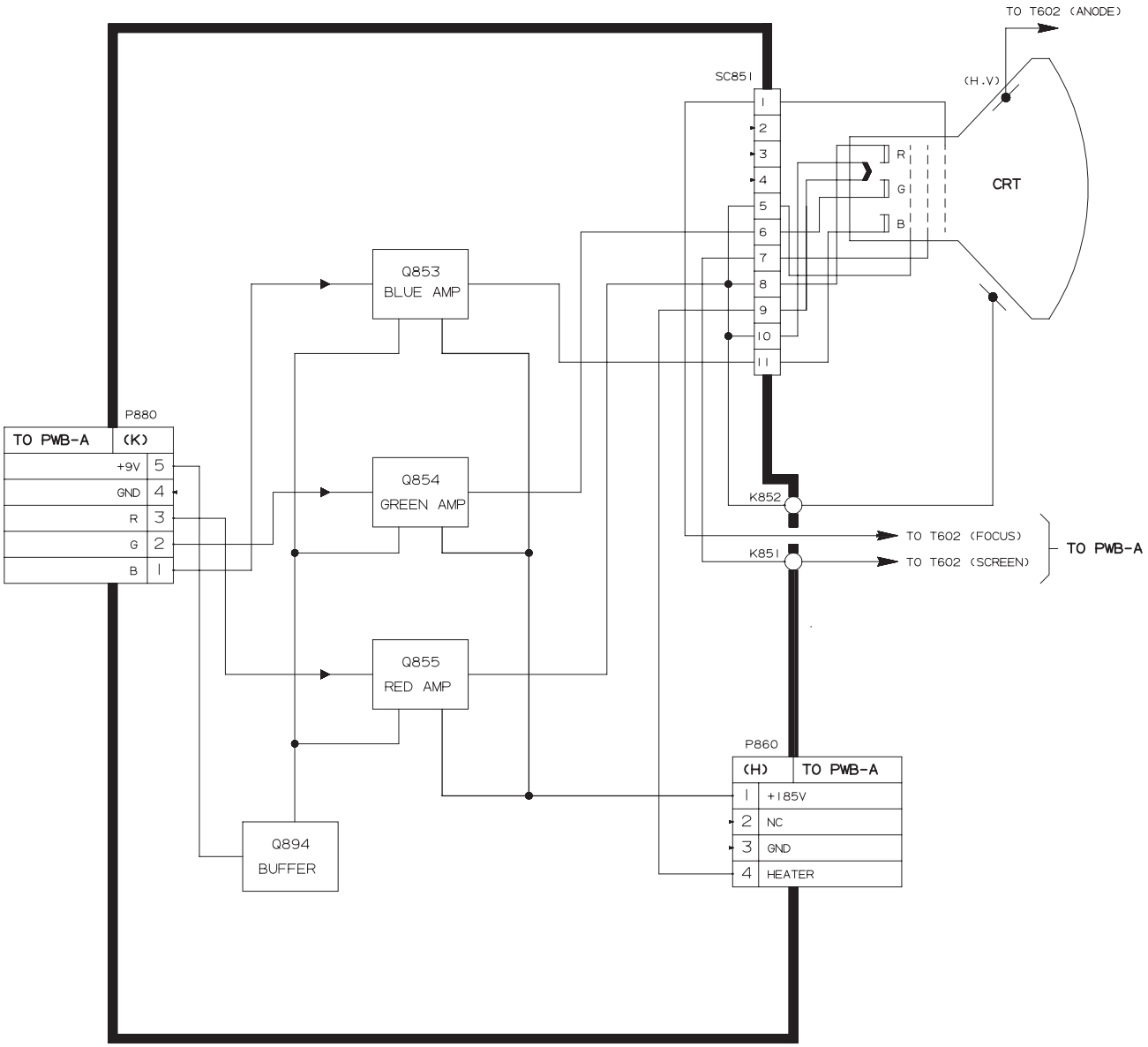
Data	OPTION FUNCTION	DATA = "0"	DATA ="1"	Default Data
001	DEMO	DEMO DISABLE	ENABLE	1
002	DOWNLOAD	V-CHIP OP DISABLE	ENABLE	1
003	V-CHIP	V-CHIP DISABLE	ENABLE	1
004	SPEAKER	SPEAKER DISABLE	ENABLE	1
005	FAO	FAO DISABLE	ENABLE	1
006	P.PREF	P.REF DISABLE	ENABLE	1
007	UNIV+	UNIV+ DISABLE	ENABLE	1
008	VIEW TIMER	VIEW TIMER DISABLE	ENABLE	1
009	EZ-SETUP	EZ-SETUP	AUTO PRESET	0
010	* PON-CH	POWER-ON DISABLE	ENABLE	0
011	FAV-COL	FAV-COL	COL-TEMP	1
012	COMPONENT	COMPONENT DISABLE	ENABLE	1
013	AV	AV DISABLE	ENABLE	1
014	AV2	AV1	AV2	1
015	MTS	MTS DISABLE	ENABLE	1
016	TONE-CTRL	S-ADJ DISABLE	ENABLE	1
017	AUTO-OFF	AUTO-OFF DISABLE	ENABLE	1
018	INIT-LANG	ENGLISH	SPANISH	0
019	SETUP-FLAG	NO SET UP	AUTO SET UP	1
020	AV-FR	"0"=NO AV "1"=REAR "2"=FRONT "3"=REAR & FRONT		3
021	AV3/S-IN	AV3/S-IN DISABLE	ENABLE	0
022	COMB	COMB DISABLE	ENABLE	0
023	AUTO-INPUT	AUTO-INPUT DISABLE	ENABLE	1
024	CLOCK	CLOCK DISABLE	ENABLE	0
025	LED	SEMEX MODEL	SPC MODEL	0
026	FLAT	FLAT DISABLE	ENABLE	1
027	BASS BOOST	BASS BOOST DISABLE	ENABLE	0
028	DSE	DSE DISABLE	ENABLE	0
029	SRS	SRS DISABLE	ENABLE	0
030	WHITE-OUT	WHITE-OUT DISABLE	ENABLE	0

*POWER ON BY CH-UP/CH-DOWN KEY

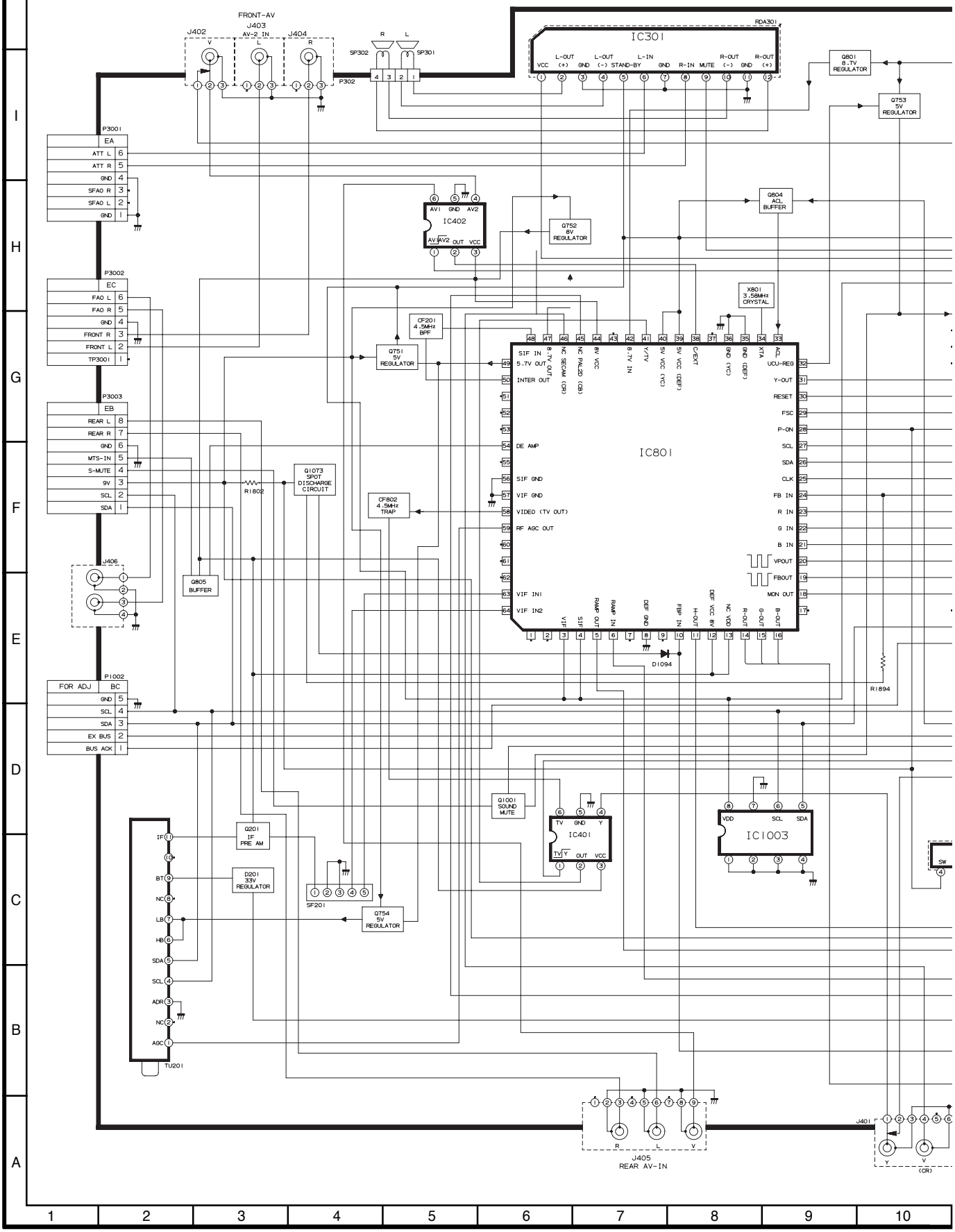
CHASSIS LAYOUT

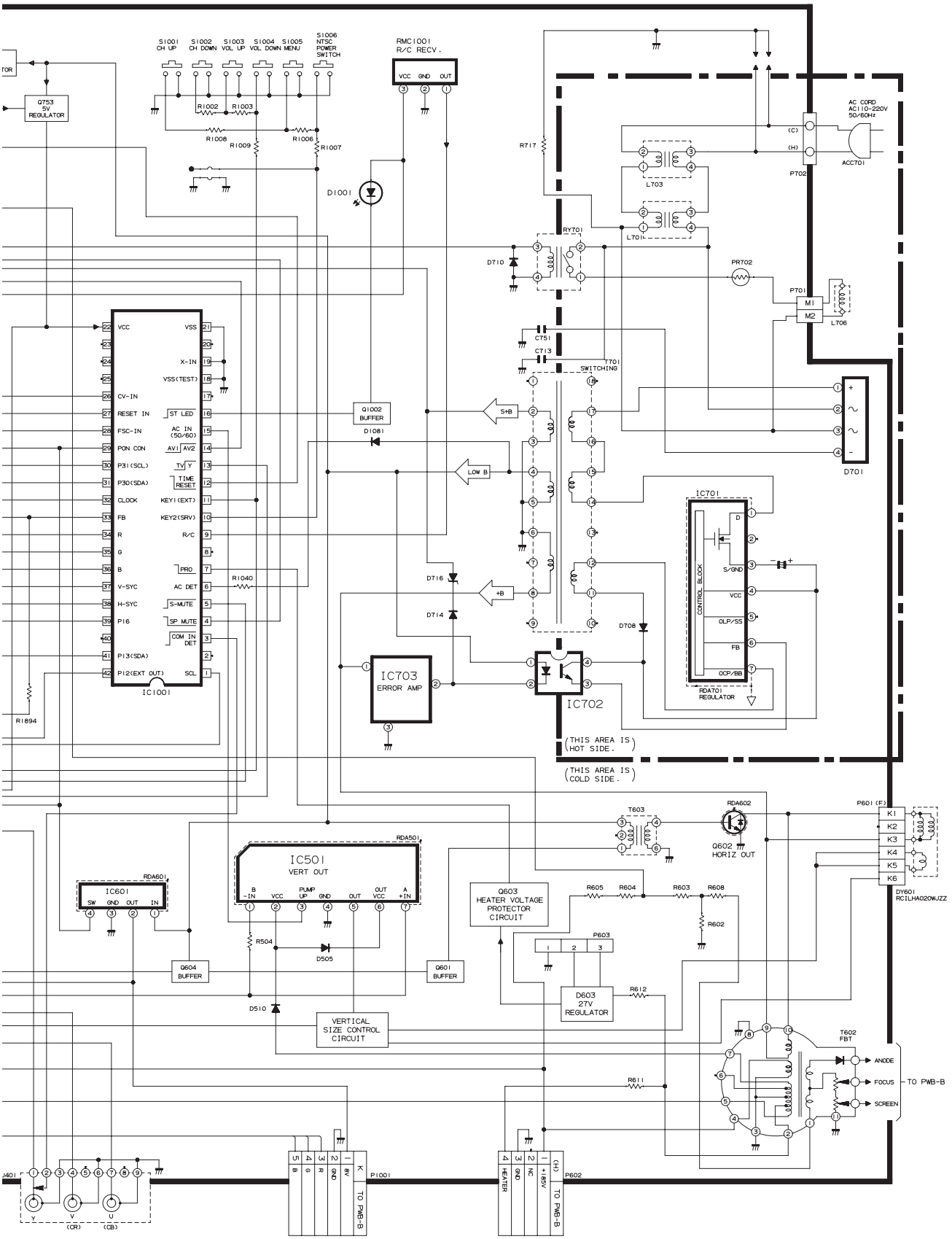


CRT BLOCK DIAGRAM



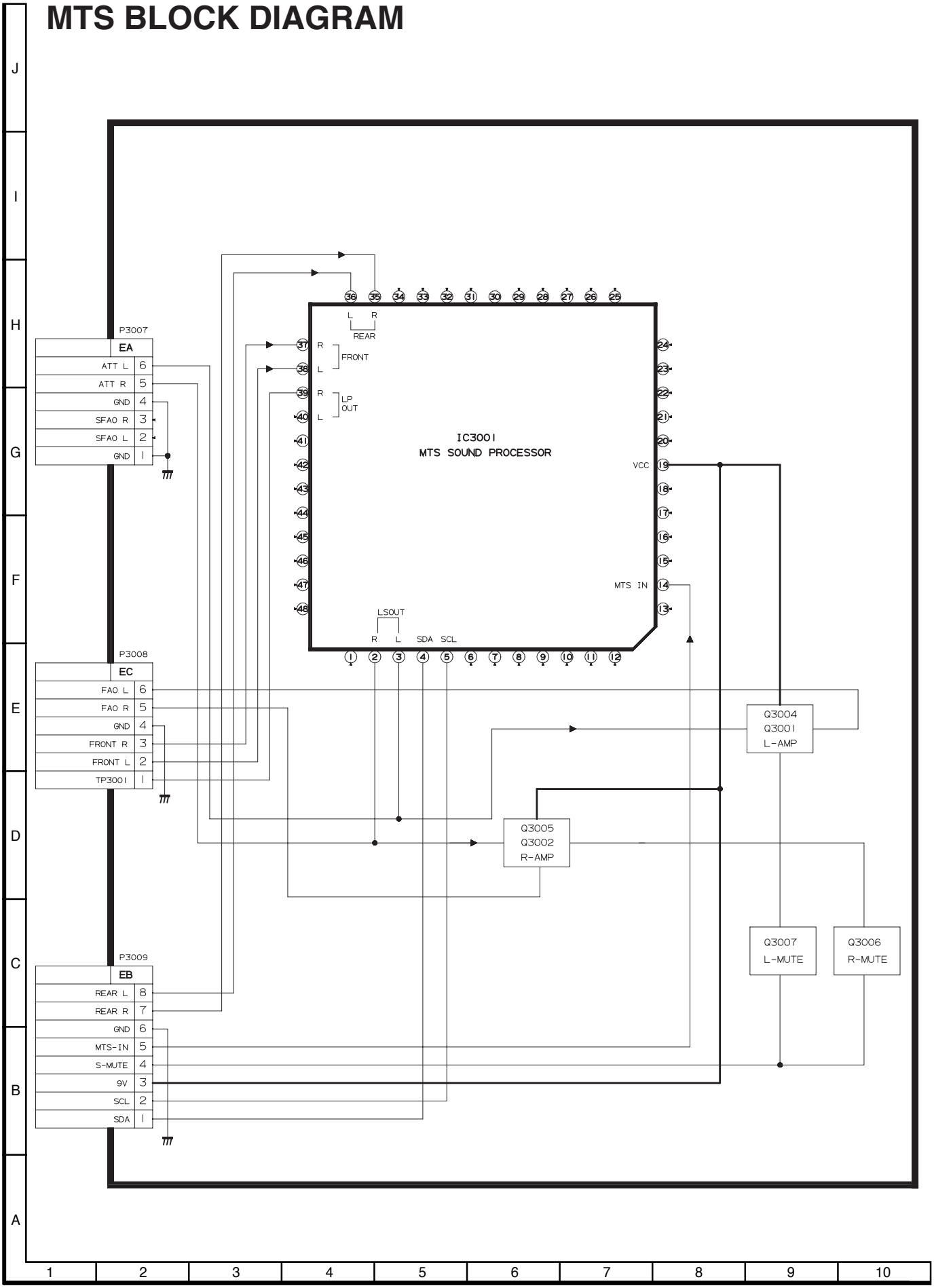
MAIN BLOCK DIAGRAM





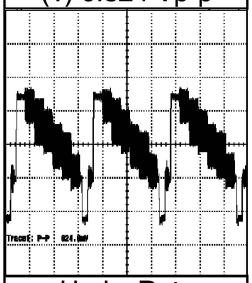
10	11	12	13	14	15	16	17	18	19

MTS BLOCK DIAGRAM



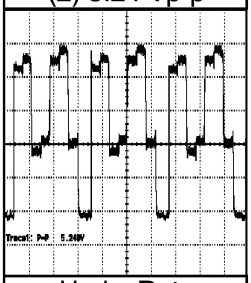
WAVEFORMS

(1) 0.824 Vp-p



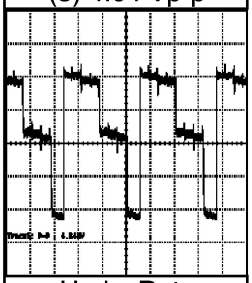
Horiz. Rate

(2) 5.24 Vp-p



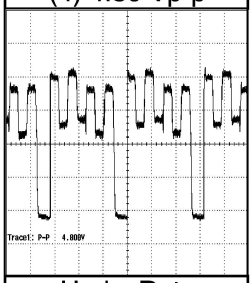
Horiz. Rate

(3) 4.64 Vp-p



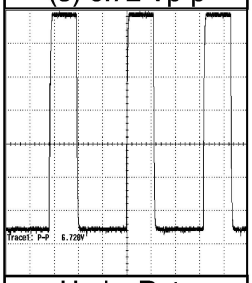
Horiz. Rate

(4) 4.80 Vp-p



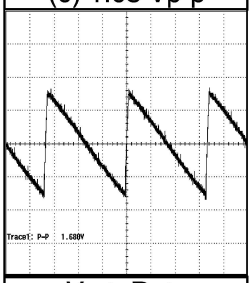
Horiz. Rate

(5) 6.72 Vp-p



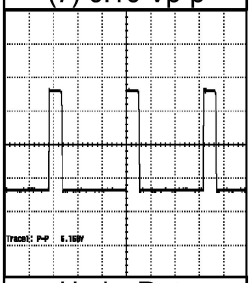
Horiz. Rate

(6) 1.68 Vp-p



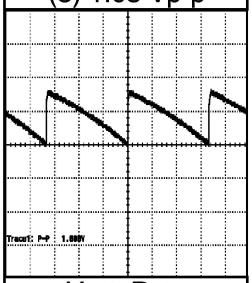
Vert. Rate

(7) 6.16 Vp-p



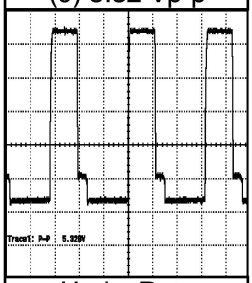
Horiz. Rate

(8) 1.68 Vp-p



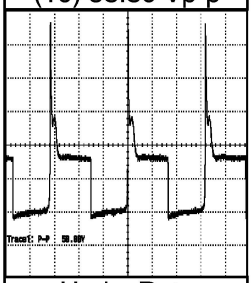
Vert. Rate

(9) 5.32 Vp-p



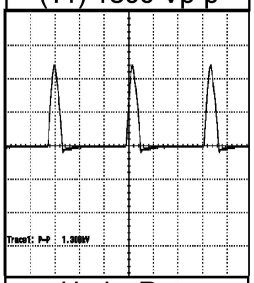
Horiz. Rate

(10) 58.80 Vp-p



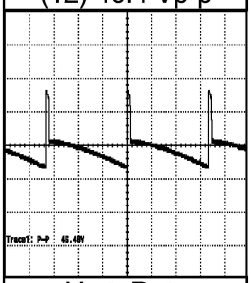
Horiz. Rate

(11) 1300 Vp-p



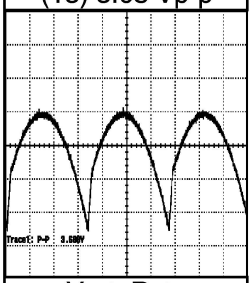
Horiz. Rate

(12) 46.4 Vp-p



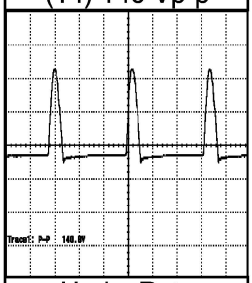
Vert. Rate

(13) 3.68 Vp-p



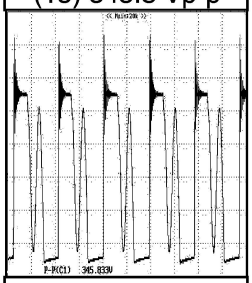
Vert. Rate

(14) 140 Vp-p



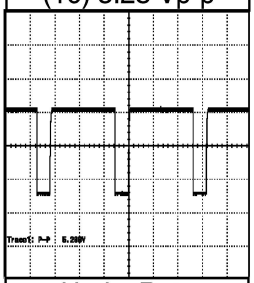
Horiz. Rate

(15) 345.8 Vp-p



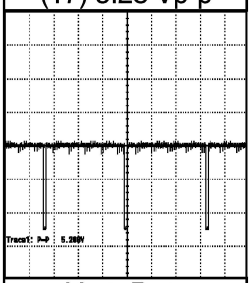
-

(16) 5.28 Vp-p



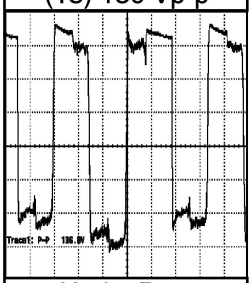
Horiz. Rate

(17) 5.28 Vp-p



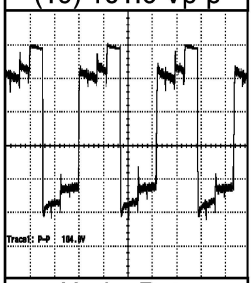
Vert. Rate

(18) 136 Vp-p



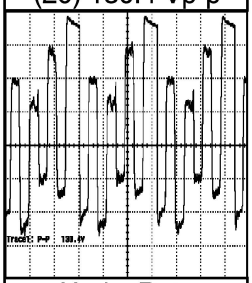
Horiz. Rate

(19) 101.6 Vp-p



Horiz. Rate

(20) 130.4 Vp-p



Horiz. Rate

DESCRIPTION OF SCHEMATIC DIAGRAM

NOTES:

1. *The unit of resistance "ohm" is omitted. (K=kΩ=1000Ω, M=MΩ)*
2. *All resistors are 1/16 watt, unless otherwise noted.*
3. *All capacitors are μF, unless otherwise noted. (P=pF=μμF)*
4. *(G) indicates ±2% tolerance may be used.*
5. ⏚ *indicates line isolated ground.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μ V B & W or Color signal.*

WAVEFORM MEASUREMENT CONDITIONS:

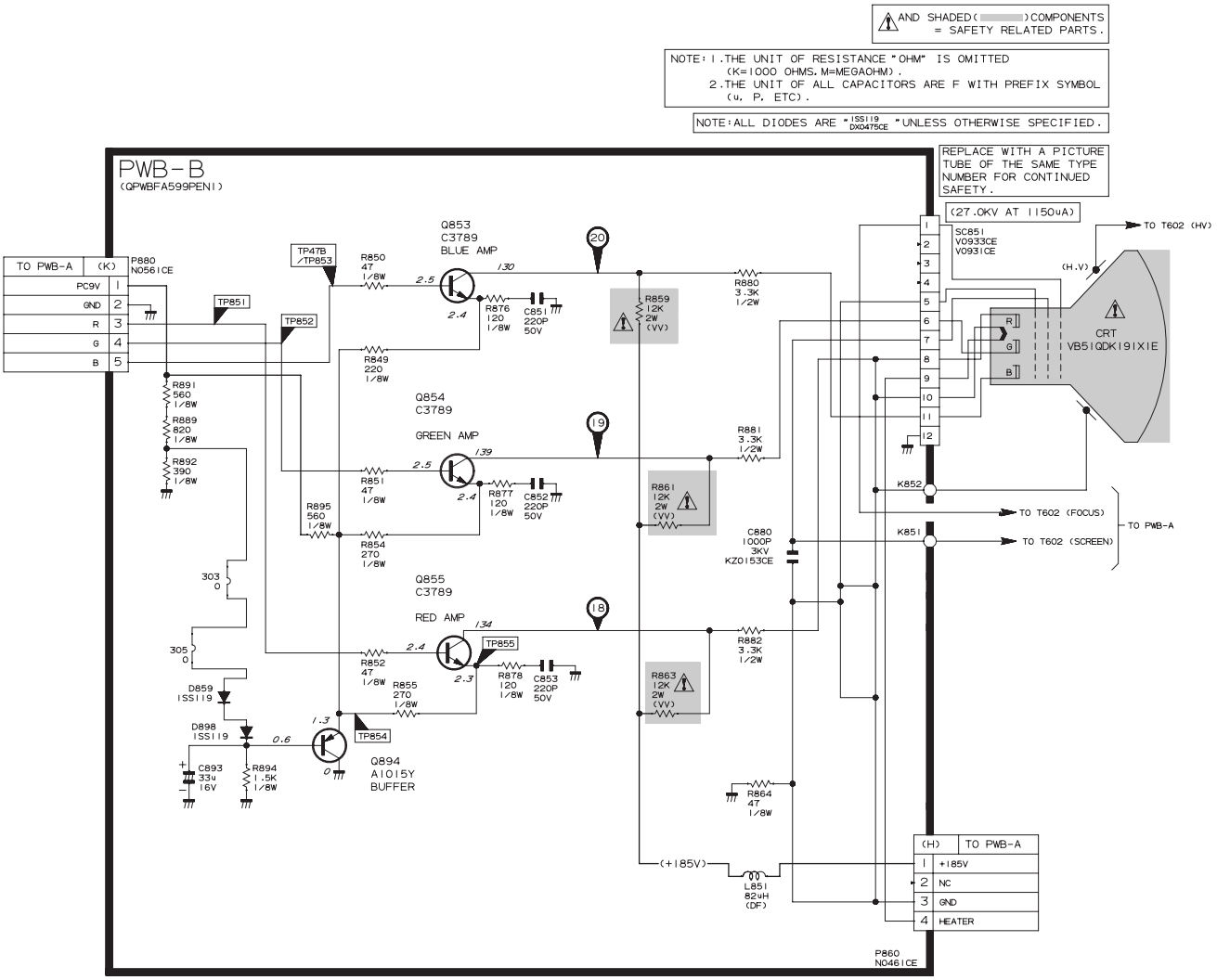
1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. *indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

⚠ *AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.*
▲ *MARK= X-RAY RELATED PARTS.*

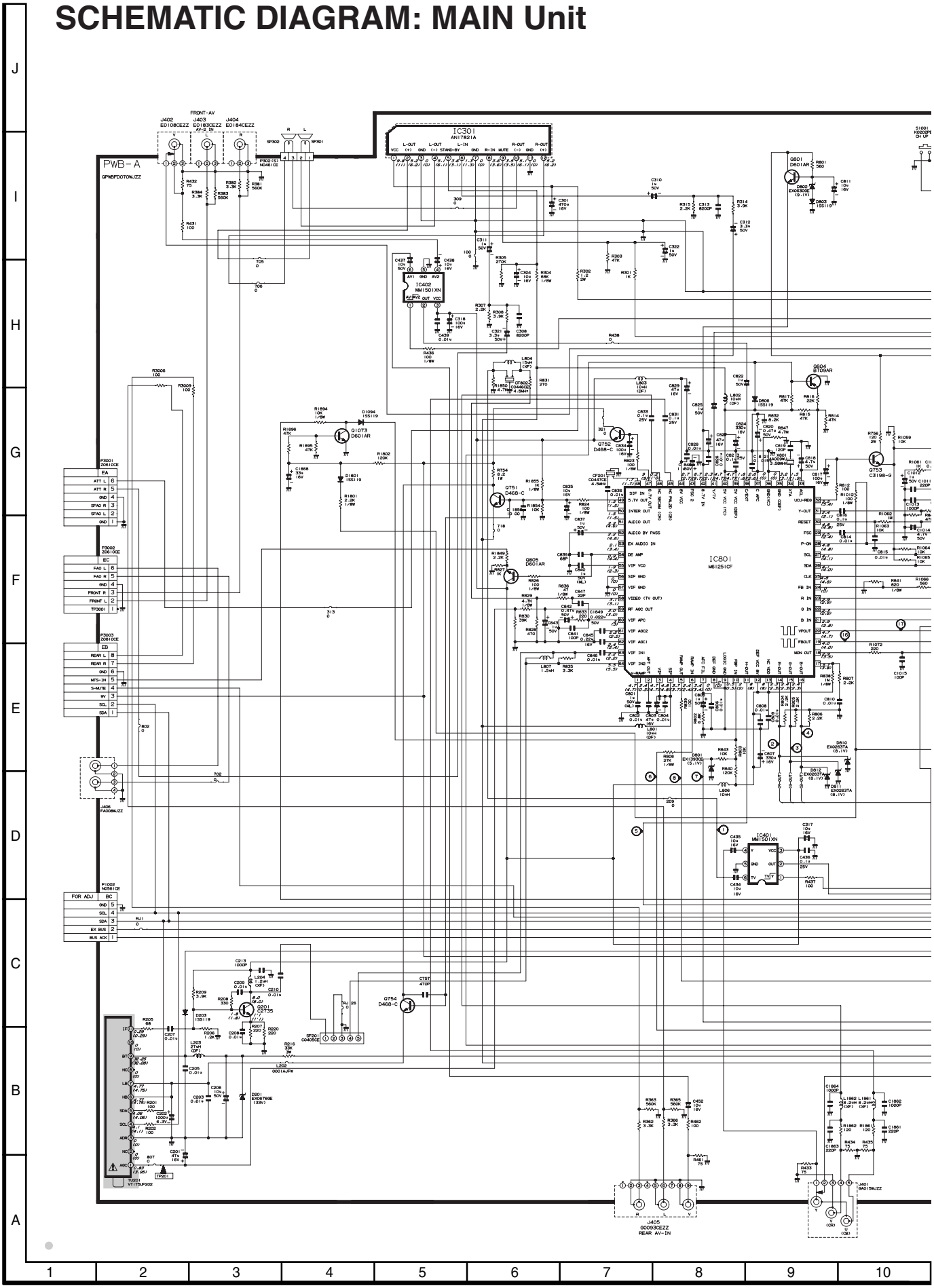
DRGANNES MARQUES ⚠ ET HACHRES ( ): PIECES RELATIVES A LA SECURITE.
MARQUE ▲ : PIECS RELATIVE AUX RAYONS X.

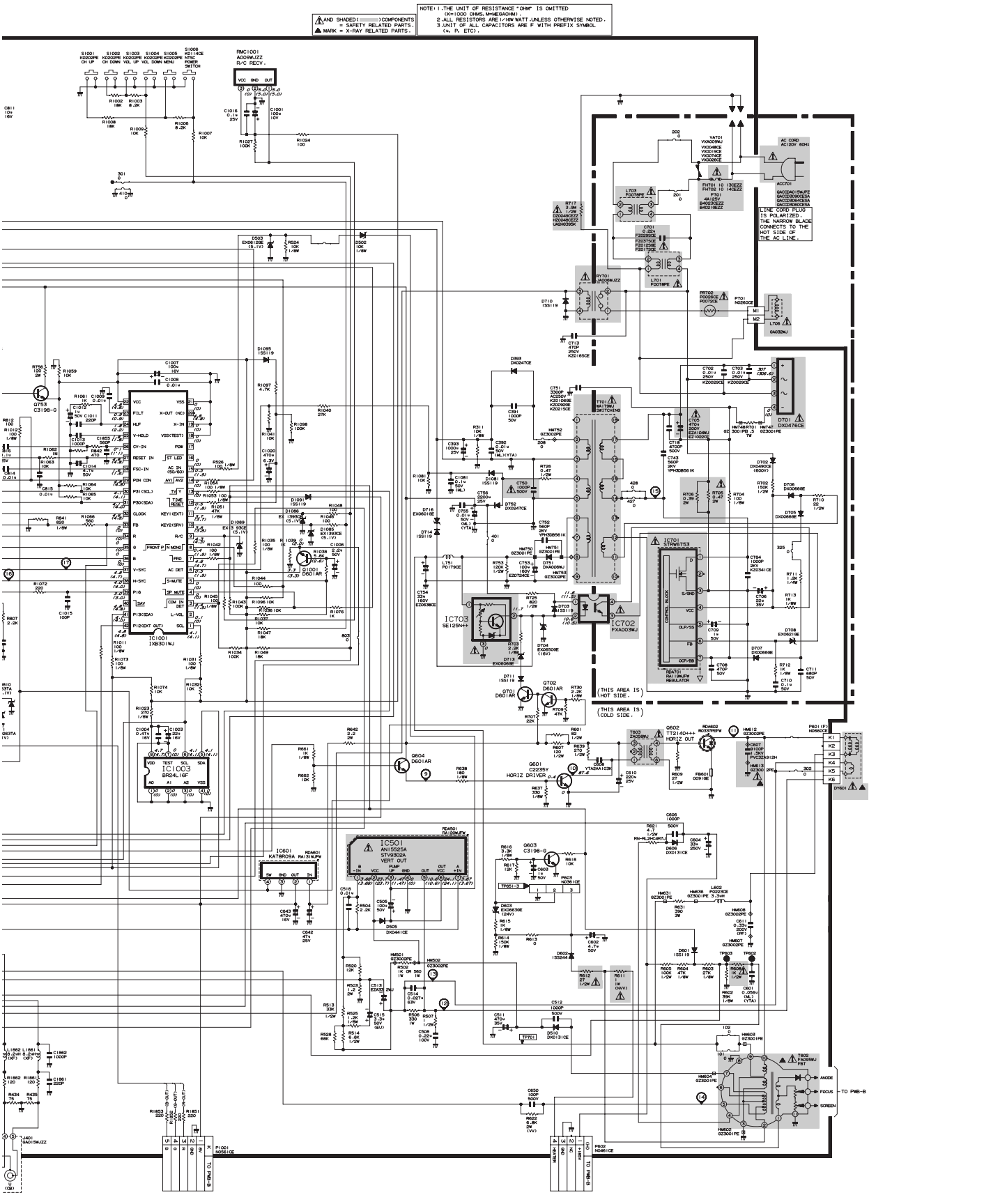
This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

SCHEMATIC DIAGRAM: CRT Unit



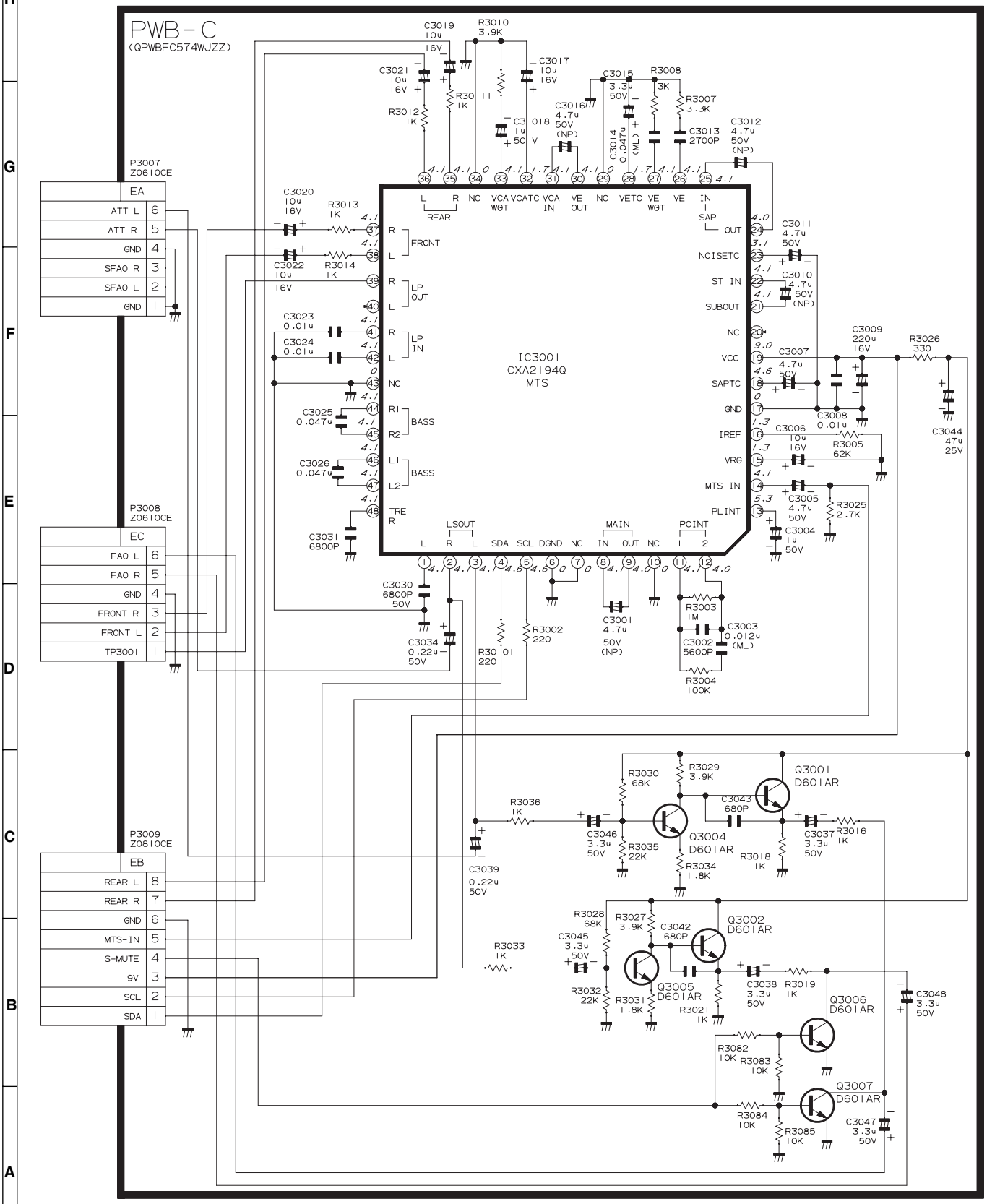
SCHEMATIC DIAGRAM: MAIN Unit



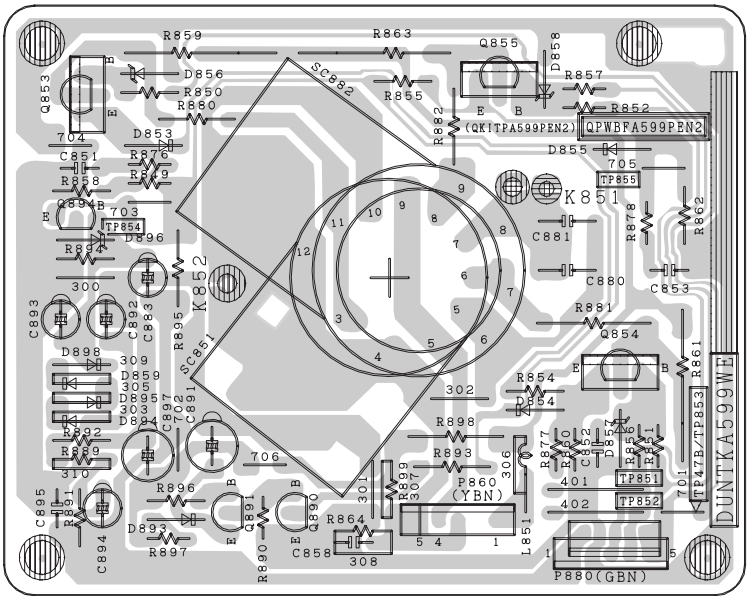

NOTE:1.THE UNIT OF RESISTANCE "OHM" IS OMITTED (K=1000 OHMS, M=MEGAOHM).
2.ALL RESISTORS ARE 1/4W WATT UNLESS OTHERWISE NOTED.
3.UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL (u, P, ETC).
AND SHADED( ) COMPONENTS = SAFETY RELATED PARTS.
MARK = X-RAY RELATED PARTS.
LINE CORD PLUG IS POLARIZED. THE NARROW BLADE CONNECTS TO THE HOT SIDE OF THE AC LINE.
(THIS AREA IS HOT SIDE.)
(THIS AREA IS COLD SIDE.)
IC1001 IXB301WJ
IC1003 BR24L16F
IC501 ANI5525A STV9302A VERT OUT
IC703 SE125N++
IC701 STRW6753
IC702 FXA0039WJ
Q601 C2235Y HORIZ DRIVER
Q602 TT2140++ HORIZ OUT
Q603 C3198-G
Q604 D601AR
Q701 D601AR
Q702 D601AR
DY601
TO PWB-B
ANODE
FOCUS
SCREEN

10	11	12	13	14	15	16	17	18	19

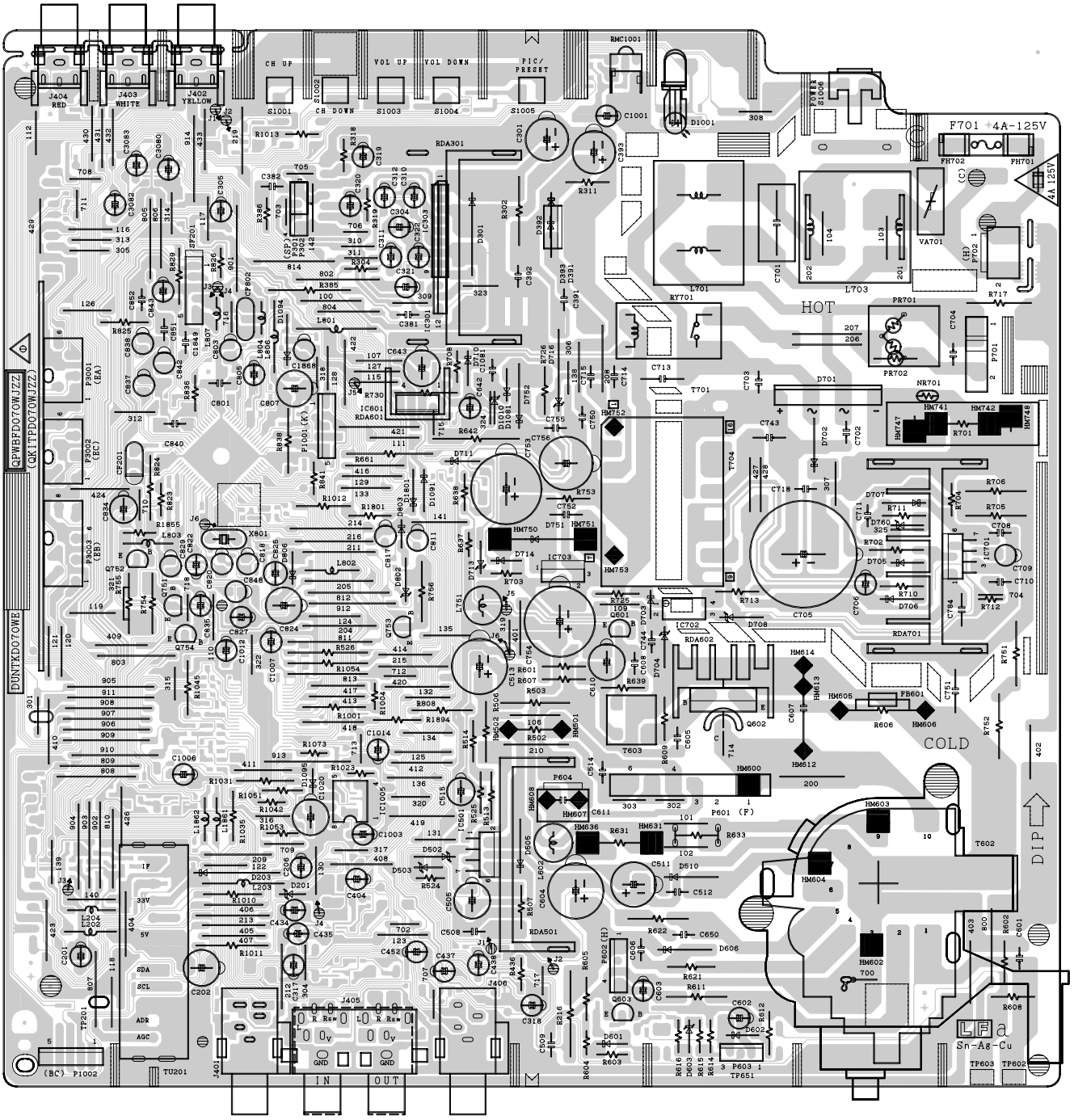
SCHEMATIC DIAGRAM: MTS Unit



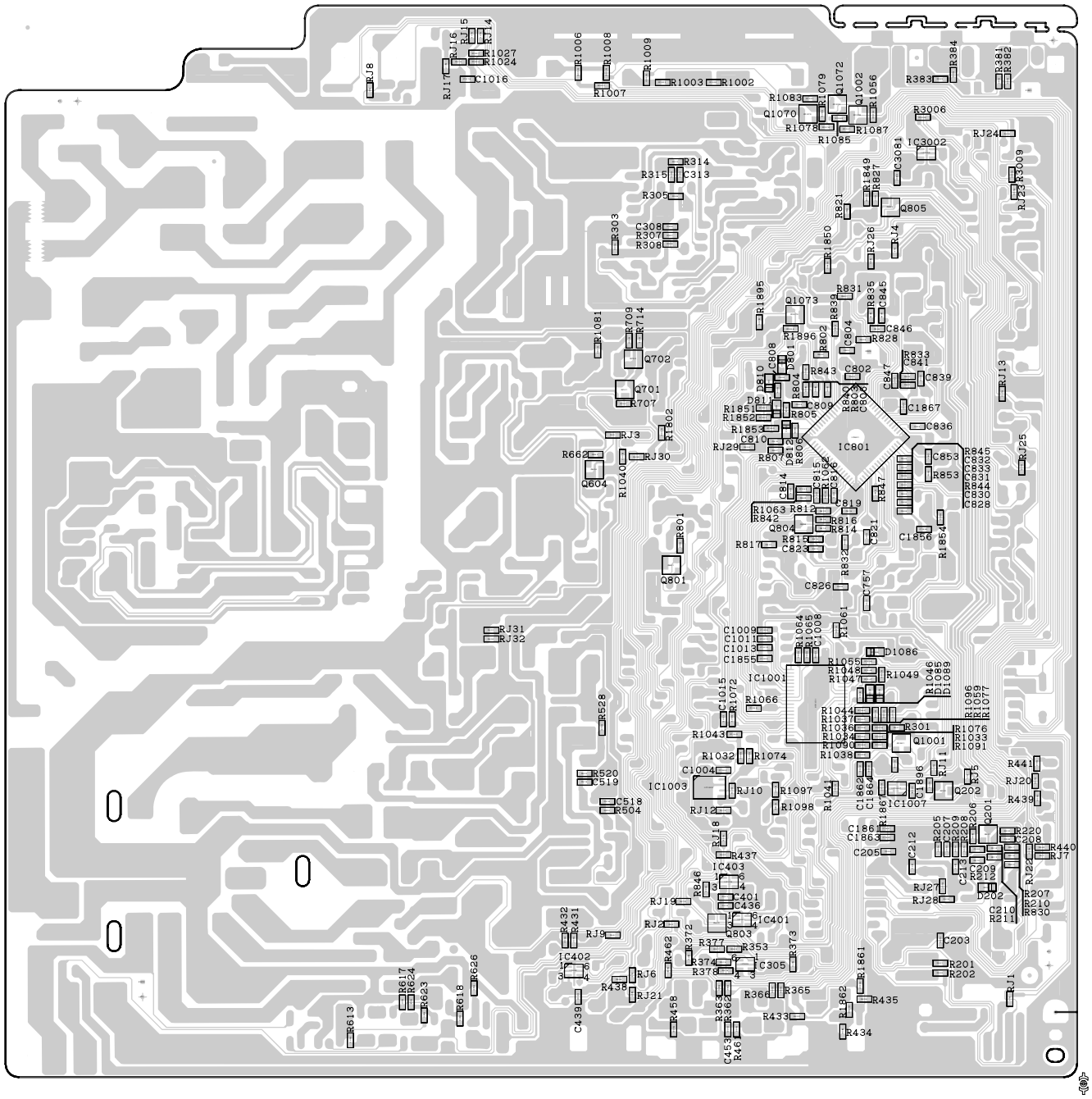
PRINTED WIRING BOARD ASSEMBLIES



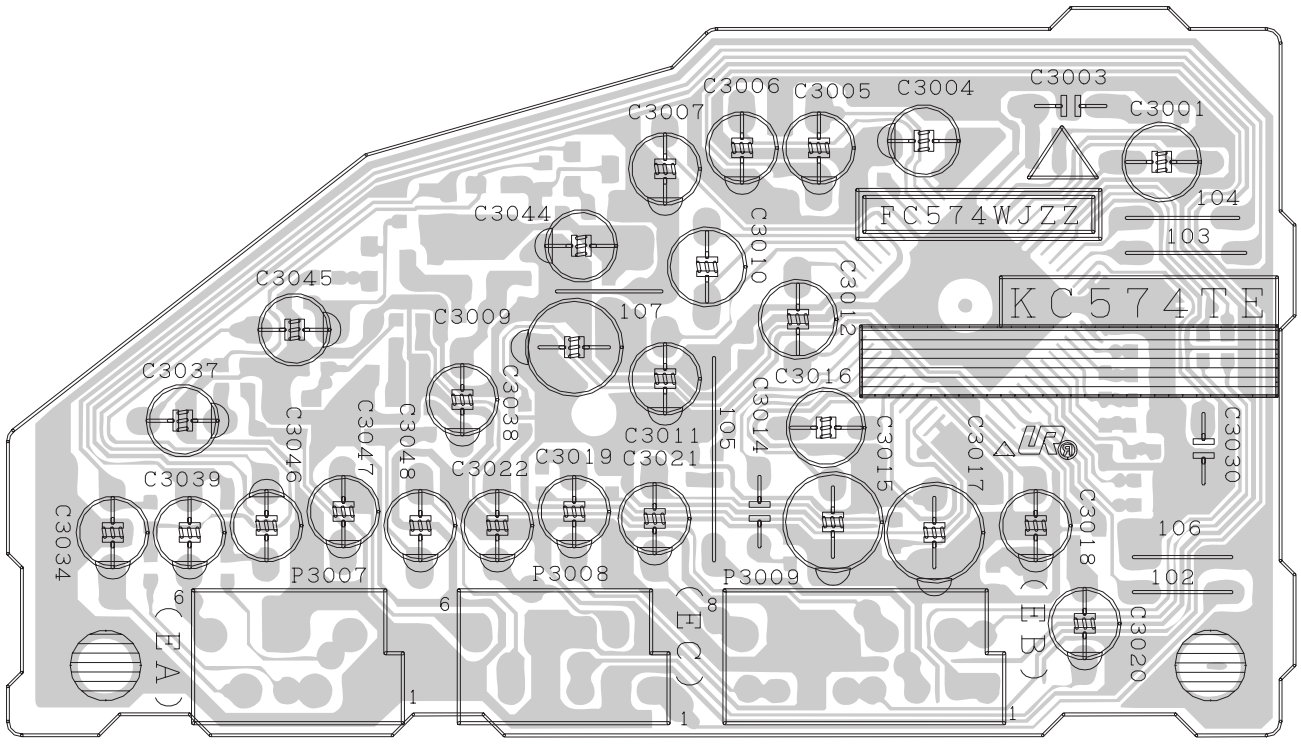
PWB-B: CRT Unit (Wiring Side)



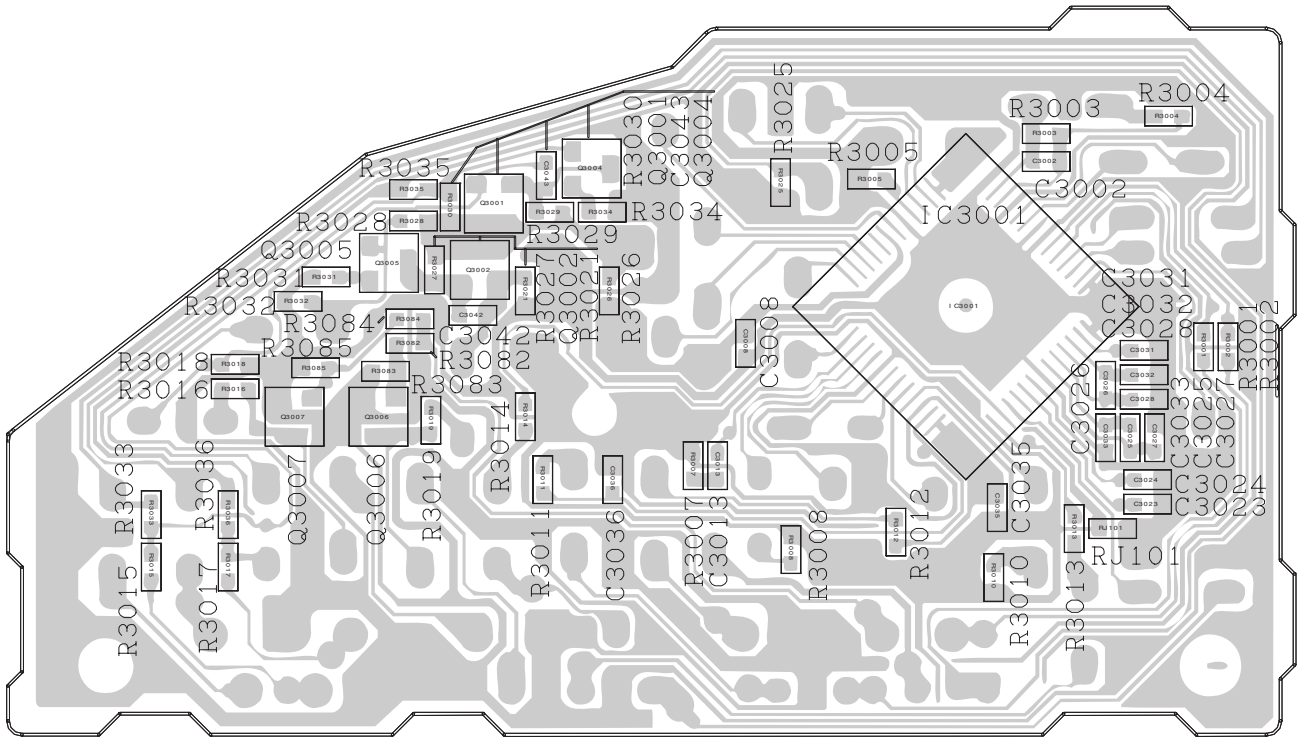
PWB-A: MAIN Unit (Wiring Side)



PWB-A: MAIN Unit (Chip Parts Side)



PWB-C: MTS Unit (Wiring Side)



PWB-C: MTS Unit (Chip Parts Side)

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

« MARK: SPARE PARTS-DELIVERY SECTION

p **MARK: X-RAY RELATED PARTS**

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

⚠		VB51QDK190X4E	X	Picture Tube	BZ
⚠	L706	RCILGA032WJZZ	X	Degaussing Coil	AN
		QEARCA012WJZZ	X	Grounding Strap	AE

PRINTED WIRING BOARD ASSEMBLIES

(NOT REPLACEMENT ITEM)

PWB-A	DUNTKD070WEA0	—	MAIN Unit	—
PWB-B	DUNTKA599WEG3	—	CRT Unit	—
PWB-C	DUNTKC574WEA2	—	MTS Unit	—

Ref. No.	Part No.	★	Description	Code

PWB-A: DUNTKD070WEA0

MAIN UNIT

TUNER

NOTE:THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDETLY

⚠	TU201	VTUVT1T5UF202	X	Tuner	AR

INTEGRATED CIRCUITS

	IC301	VHIAN17821A-1	X	AN17821A	AG
	IC401	VHIMM1501XN-1Y	X	MM1501XN	AD
	IC402	VHIMM1501XN-1Y	X	MM1501XN	AD
⚠	IC501	VHIAN15525A-1	X	AN15525A	AF
	IC601	VHIKA78R09AP1	X	KIA78R09API	AE
⚠	IC701	VHISTRW6753-1	X	STR-W6753	AL
⚠	IC702	RH-FXA003WJZZ	X	PC123Y82	AC
⚠	IC703	VHISE125N++-F	X	SE125N	AF
	IC801	VHIM61251CF1EQ	X	M61251CP	AR
	IC1001	RH-IXB301WJN1	X	M37150EFFP	AP
	IC1003	VHIBR24L16F-1Y	X	BR24L16F	AE

TRANSISTORS

	Q201	VS2SC2735//1EY	X	2SC2735	AB
	Q601	VS2SC2235Y/1E+	X	2SC2235-Y	AE
	Q602	VSTT2140+++-F	X	TT2140LS	AF
	Q603	VS2SC3198-G-1+	X	2SC3198-G	AB
	Q604	VS2SD601AR/-1Y	X	2SD601AR	AA
	Q701	VS2SD601AR/-1Y	X	2SD601AR	AA
	Q702	VS2SD601AR/-1Y	X	2SD601AR	AA
	Q751	VS2SD468-C/-1+	X	2SD468ACTZ	AB
	Q752	VS2SD468-C/-1+	X	2SD468ACTZ	AB
	Q753	VS2SC3198-G-1+	X	2SC3198-G	AB
	Q754	VS2SD468-C/-1+	X	2SD468ACTZ	AB
	Q801	VS2SD601AR/-1Y	X	2SD601AR	AA
	Q804	VS2SB709AR/-1Y	X	2SB709AR	AA
	Q805	VS2SD601AR/-1Y	X	2SD601AR	AA
	Q1001	VS2SD601AR/-1Y	X	2SD601AR	AA
	Q1073	VS2SD601AR/-1Y	X	2SD601AR	AA

DIODES

	D201	RH-EX0676GEZZY	X	Zener Diode 32V	AB
	D203	VHD1SS119//-1Y	X	Diode	AA
	D393	RH-DX0247CEZZY	X	DX0247CE	AC
	D502	VRD-RA2BE103JY	X	10k 1/8W Carbon	AA
	D503	RH-EX0612GEZZY	X	EX0612GE	AB
	D505	RH-DX0441CEZZY	X	Diode	AA
	D510	RH-DX0131CEZZY	X	Diode	AB
	D601	VHD1SS119//-1Y	X	Diode	AA
	D602	VHD1SS244//-1Y	X	Diode	AA
	D603	RH-EX0663GEZZY	X	Zener Diode, 23.77V	AB
	D606	RH-DX0131CEZZY	X	Diode	AB
⚠	D701	RH-DX0476CEZZ	X	Diode	AE
	D702	RH-DX0490CEZZY	X	Diode	AB
	D703	VHD1SS119//-1Y	X	Diode	AA
	D704	RH-EX0650GEZZY	X	Zener Diode 16V	AB
	D705	RH-DX0066GEZZY	X	Diode	AC
	D706	RH-DX0066GEZZY	X	Diode	AC
	D707	RH-DX0066GEZZY	X	Diode	AC
	D708	RH-EX0621GEZZY	X	Zener	AB
	D710	VHD1SS119//-1Y	X	Diode	AA
	D711	VHD1SS119//-1Y	X	Diode	AA
	D713	RH-EX0606GEZZY	X	Zener Diode 4.43V	AB
	D714	VHD1SS119//-1Y	X	Diode	AA
	D716	RH-EX0601GEZZY	X	Zener Diode, 3.7V	AB
	D751	RH-DXA006WJZZ	X	Diode	AC
	D752	RH-DX0247CEZZ	X	Diode	AC
	D801	RH-EX1393CEZZY	X	EX1393CE	AB
	D802	RH-EX0630GEZZY	X	Zener Diode 9.1V	AB
	D803	VHD1SS119//-1Y	X	Diode	AA
	D806	VHD1SS119//-1Y	X	Diode	AA
	D810	RH-EX0263TAZZY	X	EX0263TA	AB

PWB-A: DUNTKD070WEA0
MAIN UNIT

Ref. No.	Part No.	★	Description	Code
	DIODES			
D811	RH-EX0263TAZZY	X	EX0263TA	AB
D812	RH-EX0263TAZZY	X	EX0263TA	AB
D1081	VHD1SS119//-1Y	X	Diode	AA
D1085	RH-EX1393CEZZY	X	EX1393CE	AB
D1086	RH-EX1393CEZZY	X	EX1393CE	AB
D1089	RH-EX1393CEZZY	X	EX1393CE	AB
D1091	VHD1SS119//-1Y	X	Diode	AA
D1094	VHD1SS119//-1Y	X	Diode	AA
D1095	VHD1SS119//-1Y	X	Diode	AA
D1801	VHD1SS119//-1Y	X	Diode	AA
VA701	RH-VXA009WJZZ	X	VARISTOR	AC
	PACKAGED CIRCUITS			
⚠ PR702	RMPTP0026CEZZ	X	Packaged Circuit	AD
X801	RCRSAA009WJZZ	X	Crystal,	AD
	FILTERS			
CF201	RFILC0447CEZZ	X	Filter,FiLC0447CE	AC
CF802	RFILC0446CEZZ	X	Filter,FiLC0446CE	AC
SF201	RFILC0405CEZZ	X	Filter,(4.5MHZ)	AF
	COILS			
L202	QJUM-0001AJFWY	X	Jumper Wire	AA
L203	VP-DF270K0000Y	X	Peaking,27mH	AA
L204	VP-XF1R2K0000Y	X	Peaking,1.2mH	AA
L602	RCILP0223CEZZ	X	Coil,	AB
⚠ L701	RCILF0078PEZZ	X	Coil Line Filter	AE
⚠ L703	RCILF0078PEZZ	X	Coil Line Filter	AE
L751	RCILP0179CEZZ+	X	Coil	AB
L801	VP-DF100K0000Y	X	Peaking,10mH	AA
L802	VP-DF100K0000Y	X	Peaking,10mH	AA
L803	VP-DF100K0000Y	X	Peaking,10mH	AA
L804	VP-XF150K0000Y	X	Peaking,15mH	AA
L806	VP-DF100K0000Y	X	Peaking,10mH	AA
L807	VP-XF1R5K0000Y	X	Peaking,1.5mH	AA
L1861	VP-XF8R2K0000Y	X	Peaking,8.2mH	AA
L1862	VP-XF8R2K0000Y	X	Peaking,8.2mH	AA
	TRANSFORMERS			
⚠ T602	RTRNFA095WJZZ	X	H-Volt Transformer	AV
⚠ T603	RTRNZA058WJZZ	X	Transformer	AD
⚠ T701	RTRNWA179WJZZ	X	Transformer	AH
	CAPACITORS			
	[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]			
C201	VCEA0A1CW476M+	X	47 16V EL.	AA
C202	VCEA0A0JW108M+	X	1000 6.3V EL.	AB
C203	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C205	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C206	VCEA0A1HW106M+	X	10 50V EL.	AA
C207	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C208	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C209	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C210	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C213	VCKYCY1HB102KY	X	1000p 50V Ceramic	AA
C301	VCEA0A1CW477M+	X	470 16V EL.	AB
C304	VCEA0A1CW106M+	X	10 16V EL.	AA
C308	VCKYCY1HB822KY	X	8200p 50V Ceramic	AA
C310	VCEA0A1HW105M+	X	1 50V EL.	AA
C311	VCEA0A1HW105M+	X	1 50V EL.	AA
C312	VCEA0A1HW335M+	X	3.3 50V EL.	AA
C313	VCKYCY1HB822KY	X	8200p 50V Ceramic	AA
C317	VCE9GA1CW106M+	X	10 16V EL.	AB
C318	VCEA0A1CW107M+	X	100 16V EL.	AA
C321	VCEA0A1HW335M+	X	3.3 50V EL.	AA
C322	VCEA0A1HW105M+	X	1 50V EL.	AA
C391	VCKYPA1HB102K+	X	1000p 50V Ceramic	AA
C392	VCQYTA1HM103J+	X	0.01 50V Mylar	AA

Ref. No.	Part No.	★	Description	Code
C393	VCEA0A1EW108M+	X	1000 25V EL.	AC
C434	VCE9GA1CW106M+	X	10 16V EL.	AB
C435	VCE9GA1CW106M+	X	10 16V EL.	AB
C436	VCKYCY1EF104ZY	X	0.1 25V Ceramic	AA
C437	VCE9GA1HW106M+	X	10 50V EL.	AC
C438	VCEA0A1CW106M+	X	10 16V EL.	AA
C439	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C452	VCE9GA1CW106M+	X	10 16V EL.	AB
C505	VCEA0A1HW107M+	X	100 50V EL.	AB
C508	VCFYAA2AA224J+	X	0.22 100V M-Poly.	AC
C511	VCEA0A1VW477M+	X	470 35V EL.	AC
C512	VCKYPA2HB102K+	X	1000p 500V Ceramic	AA
C513	RC-EZA332WJZZ+	X	1000 35V EL.	AC
C515	VCEACA1HC335J+	X	3.3 50V EL.	AC
C601	VCQYTA1HM563J+	X	0.056 50V Mylar	AA
C602	VCEA0A1HW475M+	X	4.7 50V EL.	AA
C603	VCEA0A1HW105M+	X	1 50V EL.	AA
C604	VCEA0A2EW336M+	X	33 250V EL.	AD
C607	VCFPVC3ZA912H	X	9100p 1800 V M.Poly.	AC
C608	VCQYTA2AA103K+	X	10000p 100V Mylar	AB
C610	VCEA0A1EW227M+	X	220 25V EL.	AB
C611	VCFPVC2DB334J	X	0.33 250V M-Poly.	AC
C642	VCEA0A1EW476M+	X	47 25V EL.	AA
C643	VCEA0A1CW477M+	X	470 16V EL.	AB
C650	VCKYPA2HB101K+	X	100p 500V Ceramic	AA
⚠ C701	RC-FZ029SCEZZ	X	0.22 250V Ceramic	AC
C702	RC-KZ0029CEZZ+	X	0.01 AC250V Ceramic	AB
C703	RC-KZ0029CEZZ+	X	0.01 AC250V Ceramic	AB
C705	RC-EZA104WJZZ	X	470 200V EL.	AG
C706	VCEA0A1VW226M+	X	22 35V EL.	AA
C708	VCKYPA1HB471K+	X	470p 50V Ceramic	AA
C709	VCEA9M1HW105M+	X	1 50V EL.	AA
C710	VCFYFA1HA104J+	X	0.1 50V M-Poly.	AB
C711	VCKYPA1HB681K+	X	680p 50V Ceramic	AA
C713	RC-KZ016SCEZZ	X	470p 250V Ceramic	AC
C718	VCKYPA2HB472K+	X	4700p 500V Ceramic	AB
C743	VCKYPH3DB561K	X	560p 2kV Ceramic	AB
C750	VCKYPA2HB102K+	X	1000p 500V Ceramic	AA
C751	RC-KZ0106GEZZ	X	3300p AC250V Ceramic	AC
C752	VCKYPH3DB561K	X	560p 2kV Ceramic	AB
C753	RC-EZ0724CEZZ	X	100 160V EL.	AD
C754	RC-EZ0638CEZZ	X	33 160V EL.	AD
C755	VCQYTA1HM103J+	X	0.01 50V Mylar	AA
C756	VCEA0A1EW228M+	X	2200 25V EL.	AD
C757	VCKYCY1HB471KY	X	470p 50V Ceramic	AA
C784	RC-KZ0341CEZZ	X	1000p 2kV Ceramic	AB
C801	VCFYFA1HA105J+	X	1 50V M-Poly.	AC
C802	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C803	VCEA9M1CW476M+	X	47 16V EL.	AB
C804	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C805	VCEA0A1HW105M+	X	1 50V EL.	AA
C806	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C807	VCEA0A1CW337M+	X	330 16V EL.	AB
C808	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C809	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C810	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C811	VCEA9M1CW106M+	X	10 16V EL.	AA
C814	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C815	VCKYCY1HF103ZY	X	0.01 50V Ceramic	AA
C816	VCKYCY1EF104ZY	X	0.1 25V Ceramic	AA
C817	VCEA9M1CW107M+	X	100 16 V EL.	AB
C818	VCEA9M1HW475M+	X	4.7 50V EL.	AA
C819	VCCCCY1HH121JY	X	120p 50 V Ceramic	AA
C820	VCEA9M1HW474M+	X	0.47 50V EL.	AA
C821	VCKYCY1HF153ZY	X	0.015 50V Ceramic	AA
C822	VCE9GA1HW105M+	X	1 50V EL.	AB
C823	VCKYCY1EF104ZY	X	0.1 25V Ceramic	AA
C824	VCEA0A1CW337M+	X	330 16V EL.	AB
C825	VCE9GA1HW105M+	X	1 50V EL.	AB

PWB-A: DUNTKD070WEA0
MAIN UNIT

CAPACITORS
[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]

Ref. No.	Part No.	★	Description			Code
C826	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C827	VCEA0A1CW476M+	X	47	16V	EL.	AA
C828	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C829	VCEA9M1CW476M+	X	47	16V	EL.	AB
C831	VCKYCY1EF104ZY	X	0.1	25V	Ceramic	AA
C833	VCKYCY1EF104ZY	X	0.1	25V	Ceramic	AA
C834	VCEA0A1CW107M+	X	100	16V	EL.	AA
C835	VCEA0A1CW106M+	X	10	16V	EL.	AA
C836	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C837	VCEA9M1HW105M+	X	1	50V	EL.	AA
C839	VCCCCY1HH680JY	X	68p	50V	Ceramic	AA
C840	VCFYFA1HA105J+	X	1	50V	M-Poly.	AC
C841	VCCCCY1HH101JY	X	100p	50V	Ceramic	AA
C842	VCEA9M1HW474M+	X	0.47	50V	EL.	AA
C843	VCEA0A1HW105M+	X	1	50V	EL.	AA
C845	VCKYCY1CF224ZY	X	0.22	16V	Ceramic	AA
C846	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C847	VCCCCY1HH220JY	X	22p	50V	Ceramic	AA
C848	VCEA9M1HW105M+	X	1	50V	EL.	AA
C1001	VCEA0A1AW107M+	X	100	10V	EL.	AA
C1003	VCEA0A1CW226M+	X	22	16V	EL.	AA
C1004	VCKYCY1CF474ZY	X	0.47	16V	Ceramic	AA
C1006	VCEA0A1HW225M+	X	2.2	50V	EL.	AA
C1007	VCEA0A1CW107M+	X	100	16V	EL.	AA
C1008	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C1009	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C1011	VCKYCY1HB221KY	X	220p	50V	Ceramic	AA
C1012	VCEA0A1HW105M+	X	1	50V	EL.	AA
C1013	VCKYCY1HB102KY	X	1000p	50V	Ceramic	AA
C1014	VCE9GA1HW475M+	X	4.7	50V	EL.	AB
C1015	VCCCCY1HH101JY	X	100p	50V	Ceramic	AA
C1016	VCKYCY1EF104ZY	X	0.1	25V	Ceramic	AA
C1020	VCEA0A0JW477M+	X	470	6.3V	EL.	AB
C1081	VCQYTA1HM104J+	X	0.1	50V	Mylar	AB
C1849	VCFYFA1HA223J+	X	0.022	50V	Mylar	AB
C1855	VCKYCY1HB561KY	X	560p	50V	Ceramic	AA
C1856	VCKYCY1HB102KY	X	1000p	50V	Ceramic	AA
C1861	VCCCCY1HH221JY	X	220p	50V	Ceramic	AA
C1862	VCKYCY1HB102KY	X	1000p	50V	Ceramic	AA
C1863	VCCCCY1HH221JY	X	220p	50V	Ceramic	AA
C1864	VCKYCY1HB102KY	X	1000p	50V	Ceramic	AA
C1868	VCEA9M1CW336M+	X	33	16V	EL.	AA

RESISTORS
[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]

Ref. No.	Part No.	★	Description			Code
RJ1	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ3	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ5	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ9	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ10	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ12	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ13	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ14	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ17	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ18	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ19	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ20	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ22	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ25	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ26	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ29	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ30	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
RJ101	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R201	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R202	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R205	VRS-CY1JF680JY	X	68	1/16W	M-Ox.	AA
R206	VRS-CY1JF122JY	X	1.2k	1/16W	M-Ox.	AA
R207	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R208	VRS-CY1JF331JY	X	330	1/16W	M-Ox.	AA
R209	VRS-CY1JF392JY	X	3.9k	1/16W	M-Ox.	AA
R216	VRS-RG3LB333J+	X	33k	3.0W	M-Ox.	AB
R220	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R301	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R302	VRN-RL3DB1R2J+	X	1.2	2W	M-Film	AB
R303	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA
R304	VRD-RA2BE683JY	X	68k	1/8W	Carbon	AA
R305	VRS-CY1JF274JY	X	270k	1/16W	M-Ox.	AA
R307	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R308	VRS-CY1JF392JY	X	3.9k	1/16W	M-Ox.	AA
R311	VRD-RA2BE103JY	X	10k	1/8W	Carbon	AA
R314	VRS-CY1JF392JY	X	3.9k	1/16W	M-Ox.	AA
R315	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R362	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R363	VRS-CY1JF564JY	X	560k	1/16W	M-Ox.	AA
R365	VRS-CY1JF564JY	X	560k	1/16W	M-Ox.	AA
R366	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R381	VRS-CY1JF564JY	X	560k	1/16W	M-Ox.	AA
R382	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R383	VRS-CY1JF564JY	X	560k	1/16W	M-Ox.	AA
R384	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R431	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R432	VRS-CY1JF750JY	X	75	1/16W	M-Ox.	AA
R433	VRS-CY1JF750JY	X	75	1/16W	M-Ox.	AA
R434	VRS-CY1JF750JY	X	75	1/16W	M-Ox.	AA
R435	VRS-CY1JF750JY	X	75	1/16W	M-Ox.	AA
R436	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R437	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R438	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R461	VRS-CY1JF750JY	X	75	1/16W	M-Ox.	AA
R462	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R503	VRN-RL3DB1R2J+	X	1.2	2W	M-Film	AB
R504	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R506	VRS-RG3AB331J+	X	330	1W	M-Ox.	AB
R507	VRD-RM2HD1R0JY	X	1	1/2W	Carbon	AA
R513	VRD-RM2HD333JY	X	33k	1/2W	Carbon	AA
R514	VRD-RM2HD682JY	X	6.8k	1/2W	Carbon	AA
R520	VRS-CY1JF153JY	X	15k	1/16W	M-Ox.	AA
R524	VRD-RA2BE103JY	X	10k	1/8W	Carbon	AA
R525	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R526	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R601	VRD-RM2HD820JY	X	82	1/2W	Carbon	AA
R602	VRD-RA2BE393JY	X	39k	1/8W	Carbon	AA
R603	VRD-RA2BE273JY	X	27k	1/8W	Carbon	AA
R604	VRD-RA2BE473JY	X	47k	1/8W	Carbon	AA
R605	VRD-RM2HD104JY	X	100k	1/2W	Carbon	AA
R607	VRD-RM2HD121JY	X	120	1/2W	Carbon	AA
R608	VRD-RM2HD102JY	X	1.0k	1/2W	Carbon	AA
R609	VRD-RM2HD270JY	X	27	1/2W	Carbon	AA
R611	VRN-RL3AB1R0J+	X	1.0	1W	M-Film	AB
R612	VRD-RM2HD270JY	X	27	1/2W	Carbon	AA
R613	VRS-CY1JF000JY	X	00	1/16W	M-Ox.	AA
R614	VRD-RA2BE154JY	X	150k	1/8W	Carbon	AA
R615	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R616	VRD-RA2BE332JY	X	3.3k	1/8W	Carbon	AA
R617	VRS-CY1JF123JY	X	12k	1/16W	M-Ox.	AA
R618	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R621	VRN-RL2HC4R7J+	X	4.7	1/2W	M-Film	AB
R622	VRS-VV3DB682J	X	6.8k	2W	M-Ox.	AA
R631	VRS-KT3LB391J	X	390	3W	M-Ox.	AD
R637	VRD-RA2BE331JY	X	330	1/8W	Carbon	AA
R638	VRD-RA2BE181JY	X	180	1/8W	Carbon	AA
R639	VRD-RM2HD271JY	X	270	1/2W	Carbon	AA

PWB-A: DUNTKD070WEA0
MAIN UNIT

RESISTORS
[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]

Ref. No.	Part No.	★	Description			Code
R642	VRN-RL3DB2R2J+	X	2.2	2W	M-Film	AB
R661	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R662	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R701	VRW-KQ3NC1R5K	X	1.5	7W	Cement	AC
R702	VRD-RM2HD154JY	X	150k	1/2W	Carbon	AA
R703	VRD-RA2BE222JY	X	2.2k	1/8W	Carbon	AA
R704	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R705	VRN-RL3DBR47J+	X	0.47	2W	M-Film	AB
R706	VRN-RL3DBR39J+	X	0.39	2W	M-Film	AB
R707	VRS-CY1JF223JY	X	22k	1/16W	M-Ox.	AA
R709	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA
R710	VRD-RM2HD220JY	X	22	1/2W	Carbon	AA
R711	VRD-RA2EE122JY	X	1.2k	1/4W	Carbon	AA
R712	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R713	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R717	RR-DZ0049CEZZY	X	3.9M	1/2W	Solid	AB
R725	VRD-RM2HD821JY	X	820	1/2W	Carbon	AA
R726	VRN-RL2HCR47J+	X	0.47	1/2W	M-Film	AB
R730	VRD-RA2BE222JY	X	2.2k	1/8W	Carbon	AA
R753	VRD-RM2HD124JY	X	120k	1/2W	Carbon	AA
R754	VRN-RL3AB8R2J+	X	8.2	1W	M-Film	AB
R756	VRS-RG3DB121J+	X	120	2W	M-Ox.	AB
R801	VRS-CY1JF561JY	X	560	1/16W	M-Ox.	AA
R802	VRS-CY1JF682JY	X	6.8k	1/16W	M-Ox.	AA
R803	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R804	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R805	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R806	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R807	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R808	VRD-RA2BE273JY	X	27k	1/8W	Carbon	AA
R812	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R814	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA
R815	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA
R816	VRS-CY1JF223JY	X	22k	1/16W	M-Ox.	AA
R817	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA
R823	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R824	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R826	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R827	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R828	VRS-CY1JF471JY	X	470	1/16W	M-Ox.	AA
R829	VRD-RA2BE472JY	X	4.7k	1/8W	Carbon	AA
R830	VRS-CY1JF393JY	X	39k	1/16W	M-Ox.	AA
R831	VRS-CY1JF271JY	X	270	1/16W	M-Ox.	AA
R832	VRS-CY1JF822JY	X	8.2k	1/16W	M-Ox.	AA
R833	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R835	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R836	VRD-RA2BE470JY	X	47	1/8W	Carbon	AA
R838	VRD-RA2BE105JY	X	1 M	1/8W	Carbon	AA
R839	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R840	VRS-CY1JF124JY	X	120k	1/16W	M-Ox.	AA
R841	VRD-RA2BE821JY	X	820	1/8W	Carbon	AA
R842	VRS-CY1JF471JY	X	470	1/16W	M-Ox.	AA
R843	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R847	VRS-CY1JF475JY	X	4.7M	1/16W	M-Ox.	AA
R1002	VRS-CY1JF183JY	X	18k	1/16W	M-Ox.	AA
R1003	VRS-CY1JF822JY	X	8.2k	1/16W	M-Ox.	AA
R1006	VRS-CY1JF822JY	X	8.2k	1/16W	M-Ox.	AA
R1007	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1008	VRS-CY1JF183JY	X	18k	1/16W	M-Ox.	AA
R1009	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1011	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1012	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1023	VRD-RA2BE271JY	X	270	1/8W	Carbon	AA
R1024	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R1027	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R1031	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1032	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1034	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R1035	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1036	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1037	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1038	VRS-CY1JF562JY	X	5.6k	1/16W	M-Ox.	AA
R1039	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R1040	VRS-CY1JF273JY	X	27k	1/16W	M-Ox.	AA
R1041	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1042	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1043	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R1044	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R1045	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1046	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R1047	VRS-CY1JF183JY	X	18k	1/16W	M-Ox.	AA
R1048	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R1049	VRS-CY1JF183JY	X	18k	1/16W	M-Ox.	AA
R1051	VRD-RA2BE473JY	X	47k	1/8W	Carbon	AA
R1053	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1054	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1059	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1061	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R1062	VRS-CY1JF105JY	X	1M	1/16W	M-Ox.	AA
R1063	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1064	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1065	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1066	VRS-CY1JF561JY	X	560	1/16W	M-Ox.	AA
R1072	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R1073	VRD-RA2BE101JY	X	100	1/8W	Carbon	AA
R1074	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1076	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R1081	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1096	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1097	VRS-CY1JF472JY	X	4.7k	1/16W	M-Ox.	AA
R1098	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R1801	VRD-RA2BE222JY	X	2.2k	1/8W	Carbon	AA
R1802	VRS-CY1JF124JY	X	120k	1/16W	M-Ox.	AA
R1849	VRS-CY1JF222JY	X	2.2k	1/16W	M-Ox.	AA
R1850	VRS-CY1JF472JY	X	4.7k	1/16W	M-Ox.	AA
R1851	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R1852	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R1853	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R1854	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R1855	VRD-RA2BE102JY	X	1k	1/8W	Carbon	AA
R1861	VRS-CY1JF121JY	X	120	1/16W	M-Ox.	AA
R1862	VRS-CY1JF121JY	X	120	1/16W	M-Ox.	AA
R1894	VRD-RA2BE103JY	X	10k	1/8W	Carbon	AA
R1895	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA
R1896	VRS-CY1JF473JY	X	47k	1/16W	M-Ox.	AA

FERRITE BEAD

FB601	RBLN-0091GEZZY	X	Ferrite Bead			AA

SWITCHES

S1001	QSW-K0202PEZZ+	X	Switch,			AB
S1002	QSW-K0202PEZZ+	X	Switch,			AB
S1003	QSW-K0202PEZZ+	X	Switch,			AB
S1004	QSW-K0202PEZZ+	X	Switch,			AB
S1005	QSW-K0202PEZZ+	X	Switch,			AB
S1006	QSW-K0114CEZZ	X	Switch,			AE

MISCELLANEOUS PARTS

⚠	F701	QFS-B4023CEZZ	X	FUSE - 4A 125V		AC
⚠	FH701	QFSHD1013CEZZ+	X	FUSE CLIP		AA
⚠	FH702	QFSHD1014CEZZ+	X	FUSE CLIP		AA
	J401	QJAKGA015WJZZ	X	Jack,9Pin		AF
	J402	QJAKE0108CEZZ	X	Jack,3Pin		AD
	J403	QJAKE0183CEZZ	X	Jack,3Pin		AD

PWB-A: DUNTKD070WEA0
MAIN UNIT

Ref. No.	Part No.	★	Description	Code
	MISCELLANEOUS PARTS			
J404	QJAKE0184CEZZ	X	Jack,3Pin	AD
J405	QJAKG0093CEZZ	X	Rear A/V Terminal Jack	AF
J406	QJAKFA008WJZZ	X	Jack	AE
P302	QPLGN0461CEZZA	X	plug,4pin(S1-4)	AB
P601	QPLGN0660CEZZ	X	plug (6 pins)	AC
P602	QPLGN0461CEZZA	X	plug,4pin(S1-4)	AB
P603	QPLGN0361CEZZA	X	plug,3pin (TP651-3)	AB
P701	QPLGN0260CEZZ	X	plug 2pin(M1-2)	AB
P1001	QPLGN0561CEZZA	X	plug 5Pin(KA)	AB
P1002	QPLGN0561CEZZ	X	plug (5 pins)	AA
RDA501	PRDARA120WJFW	X	Heat Sink	AD
RDA601	PRDARA131WJFW	X	Heat Sink	AD
RDA602	PRDAR0337PEFW	X	Heat Sink	AC
⚠ RDA701	PRDARA119WJFW	X	Heat Sink	AE
RMC1001	RRMCUA009WJZZ	X	R/C Receiver	AE
⚠ RY701	RRLYJA006WJZZ	X	Relay	AE

PWB-B: DUNTKA599WEG3
CRT UNIT

Ref. No.	Part No.	★	Description			Code
	TRANSISTORS					
Q853	VS2SC3789//2E	X	2SC3789			AD
Q854	VS2SC3789//2E	X	2SC3789			AD
Q855	VS2SC3789//2E	X	2SC3789			AD
Q894	VS2SA1015Y/1E+	X	2SA1015Y			AB
	DIODE					
D859	VHD1SS119//-1Y	X	Diode			AA
D898	VHD1SS119//-1Y	X	Diode			AA
	COIL					
L851	VP-MK820K0000+	X	Peaking,82mH			AB
	CAPACITORS					
	[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]					
C851	VCKYPA1HB221K+	X	220p	50V	Ceramic	AA
C852	VCKYPA1HB221K+	X	220p	50V	Ceramic	AA
C853	VCKYPA1HB221K+	X	220p	50V	Ceramic	AA
C880	RC-KZ0153CEZZ	X	1000p	3kV	Ceramic	AB
C893	VCEA0A1CW336M+	X	33	16V	EL.	AA
	RESISTORS					
	[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]					
R849	VRD-RA2BE221JY	X	220	1/8W	Carbon	AA
R850	VRD-RA2BE470JY	X	47	1/8W	Carbon	AA
R851	VRD-RA2BE470JY	X	47	1/8W	Carbon	AA
R852	VRD-RA2BE470JY	X	47	1/8W	Carbon	AA
R854	VRD-RA2BE271JY	X	270	1/8W	Carbon	AA
R855	VRD-RA2BE271JY	X	270	1/8W	Carbon	AA
⚠ R859	VRS-VV3DB123J	X	12k	2W	M-Ox.	AA
⚠ R861	VRS-VV3DB123J	X	12k	2W	M-Ox.	AA
⚠ R863	VRS-VV3DB123J	X	12k	2W	M-Ox.	AA
R864	VRD-RA2BE470JY	X	47	1/8W	Carbon	AA
R876	VRD-RA2BE121JY	X	120	1/8W	Carbon	AA
R877	VRD-RA2BE121JY	X	120	1/8W	Carbon	AA
R878	VRD-RA2BE121JY	X	120	1/8W	Carbon	AA
R880	VRD-RM2HD332JY	X	3.3k	1/2W	Carbon	AA
R881	VRD-RM2HD332JY	X	3.3k	1/2W	Carbon	AA
R882	VRD-RM2HD332JY	X	3.3k	1/2W	Carbon	AA
R889	VRD-RA2BE821JY	X	820	1/8W	Carbon	AA
R891	VRD-RA2BE561JY	X	560	1/8W	Carbon	AA
R892	VRD-RA2BE391JY	X	390	1/8W	Carbon	AA
R894	VRD-RA2BE152JY	X	1.5k	1/8W	Carbon	AA
R895	VRD-RA2BE561JY	X	560	1/8W	Carbon	AA
	MISCELLANEOUS PARTS					
P860	QPLGN0461CEZZ	X	plug (4 PINS)			AA
P880	QPLGN0561CEZZ	X	plug (5 pins)			AA
SC851	QSOCV0933CEZZ	X	SOCKET (CRT)			AD

PWB-C: DUNTKC574WEA2
MTS UNIT

Ref. No.	Part No.	★	Description			Code
	INTEGRATED CIRCUITS					
IC3001	VHICXA2194Q-1Y	X	CXA2194Q			AR
	TRANSISTORS					
Q3001	VS2SD601AR/-1Y	X	2SD601AR			AA
Q3002	VS2SD601AR/-1Y	X	2SD601AR			AA
Q3004	VS2SD601AR/-1Y	X	2SD601AR			AA
Q3005	VS2SD601AR/-1Y	X	2SD601AR			AA
Q3006	VS2SD601AR/-1Y	X	2SD601AR			AA
Q3007	VS2SD601AR/-1Y	X	2SD601AR			AA
	CAPACITORS					
	[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]					
C3001	VCE9GA1HW475M+	X	4.7	50V	EL.	AB
C3002	VCKYCY1HB562KY	X	5600p	50V	Ceramic	AA
C3003	VCQYTA1HM123J+	X	0.012	50V	Mylar	AA
C3004	VCEA0A1HW105M+	X	1	50V	EL.	AA
C3005	VCEA0A1HW475M+	X	4.7	50V	EL.	AA
C3006	VCEA0A1CW106M+	X	10	16V	EL.	AA
C3007	VCEA0A1HW475M+	X	4.7	50V	EL.	AA
C3008	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C3009	VCEA0A1CW227M+	X	220	16V	EL.	AB
C3010	VCE9GA1HW475M+	X	4.7	50V	EL.	AB
C3011	VCEA0A1HW475M+	X	4.7	50V	EL.	AA
C3012	VCE9GA1HW475M+	X	4.7	50V	EL.	AB
C3013	VCKYCY1HB272KY	X	2700p	50V	Ceramic	AA
C3014	VCQYTA1HM473J+	X	0.047	50V	Mylar	AA
C3015	VCEACA1HC335K+	X	3.3	50V	EL.	AC
C3016	VCE9GA1HW475M+	X	4.7	50V	EL.	AB
C3017	VCEACA1CC106K+	X	10	16V	EL.	AC
C3018	VCEA0A1HW105M+	X	1	50V	EL.	AA
C3019	VCEA0A1CW106M+	X	10	16V	EL.	AA
C3020	VCEA0A1CW106M+	X	10	16V	EL.	AA
C3021	VCEA0A1CW106M+	X	10	16V	EL.	AA
C3022	VCEA0A1CW106M+	X	10	16V	EL.	AA
C3023	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C3024	VCKYCY1HF103ZY	X	0.01	50V	Ceramic	AA
C3025	VCKYCY1HF473ZY	X	0.047	50V	Ceramic	AA
C3026	VCKYCY1HF473ZY	X	0.047	50V	Ceramic	AA
C3030	VCQYTA1HM682J+	X	6800P	50V	Mylar	AA
C3031	VCKYCY1HF682ZY	X	6800p	50V	Ceramic	AA
C3034	VCEA0A1HW224M+	X	0.22	50V	EL.	AA
C3037	VCEA0A1HW335M+	X	3.3	50V	EL.	AA
C3038	VCEA0A1HW335M+	X	3.3	50V	EL.	AA
C3039	VCEA0A1HW224M+	X	0.22	50V	EL.	AA
C3042	VCKYCY1HB681KY	X	680p	50V	Ceramic	AA
C3043	VCKYCY1HB681KY	X	680p	50V	Ceramic	AA
C3044	VCEA0A1EW476M+	X	47	25V	EL.	AA
C3045	VCEA0A1HW335M+	X	3.3	50V	EL.	AA
C3046	VCEA0A1HW335M+	X	3.3	50V	EL.	AA
C3047	VCEA0A1HW335M+	X	3.3	50V	EL.	AA
C3048	VCEA0A1HW335M+	X	3.3	50V	EL.	AA
	RESISTORS					
	[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]					
R3001	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R3002	VRS-CY1JF221JY	X	220	1/16W	M-Ox.	AA
R3003	VRS-CY1JF105JY	X	1M	1/16W	M-Ox.	AA
R3004	VRS-CY1JF104JY	X	100k	1/16W	M-Ox.	AA
R3005	VRS-CY1JF623JY	X	62k	1/16W	M-Ox.	AA
R3006	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R3007	VRS-CY1JF332JY	X	3.3k	1/16W	M-Ox.	AA
R3008	VRS-CY1JF302JY	X	3k	1/16W	M-Ox.	AA
R3009	VRS-CY1JF101JY	X	100	1/16W	M-Ox.	AA
R3010	VRS-CY1JF392JY	X	3.9k	1/16W	M-Ox.	AA
R3011	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3012	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA

PWB-C: DUNTKC574WEA2
MTS UNIT

Ref. No.	Part No.	★	Description			Code
			RESISTORS			
			[M-Ox.··· Metal Oxide, M-Film ··· Metal Film]			
R3013	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3014	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3016	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3018	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3019	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3021	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3025	VRS-CY1JF272JY	X	2.7k	1/16W	M-Ox.	AA
R3026	VRS-CY1JF331JY	X	330	1/16W	M-Ox.	AA
R3027	VRS-CY1JF392JY	X	3.9k	1/16W	M-Ox.	AA
R3028	VRS-CY1JF683JY	X	68k	1/16W	M-Ox.	AA
R3029	VRS-CY1JF392JY	X	3.9k	1/16W	M-Ox.	AA
R3030	VRS-CY1JF683JY	X	68k	1/16W	M-Ox.	AA
R3031	VRS-CY1JF182JY	X	1.8k	1/16W	M-Ox.	AA
R3032	VRS-CY1JF223JY	X	22k	1/16W	M-Ox.	AA
R3033	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3034	VRS-CY1JF182JY	X	1.8k	1/16W	M-Ox.	AA
R3035	VRS-CY1JF223JY	X	22k	1/16W	M-Ox.	AA
R3036	VRS-CY1JF102JY	X	1k	1/16W	M-Ox.	AA
R3082	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R3083	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R3084	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
R3085	VRS-CY1JF103JY	X	10k	1/16W	M-Ox.	AA
			MISCELLANEOUS PARTS			
P3007	QPLGZ0610CEZZ	X	plug 6Pin			AC
P3008	QPLGZ0610CEZZ	X	plug 6Pin			AC
P3009	QPLGZ0810CEZZ	X	plug 32"			AD

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠ ACC701	QACCDA015WJPZ	X	AC Cord	AG
SP301	VSP1205PB09WA	X	speaker	AM
SP302	VSP1205PB09WA	X	speaker	AM
	QCNW-A871WJZZ	X	Wire (H) 5 pin	AD
	QCNW-A872WJZZ	X	Wire (K) 4 pin	AD
	QCNW-A873WJZZ	X	Wire (speaker)	AE

SUPPLIED ACCESSORIES

	RRMCGA292WJSB	X	R/C Infrared	AS
	TINS-B776WJZZ	X	Operation Manual	AY
	TGAN-A216WJN1	X	Guarantee Card	AB
	TCAUH3045GJZZ	X	Caution Card	AB

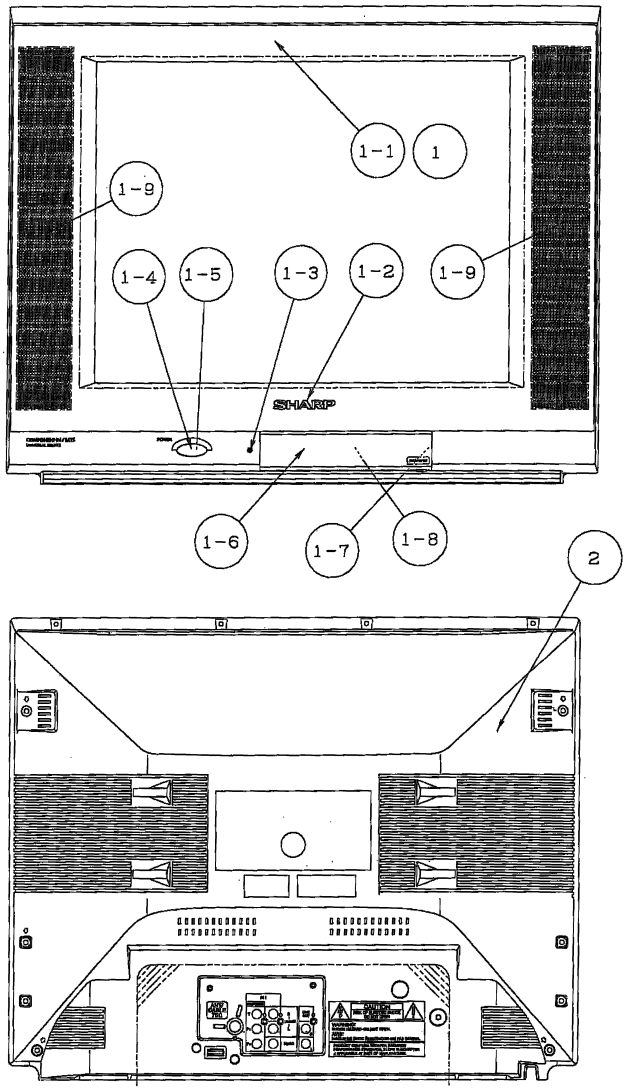
PACKING PARTS
(not Replacement Item)

	SPAKCB910WJZZ	X	Packing Case	AX
	SPAKPA055WJZZ	X	Wrapping Paper	AG
	SPAKXA145WJZZ	X	Packing Foam	AP
	SSAKA0101GJZZ	X	Plastic bag	AB

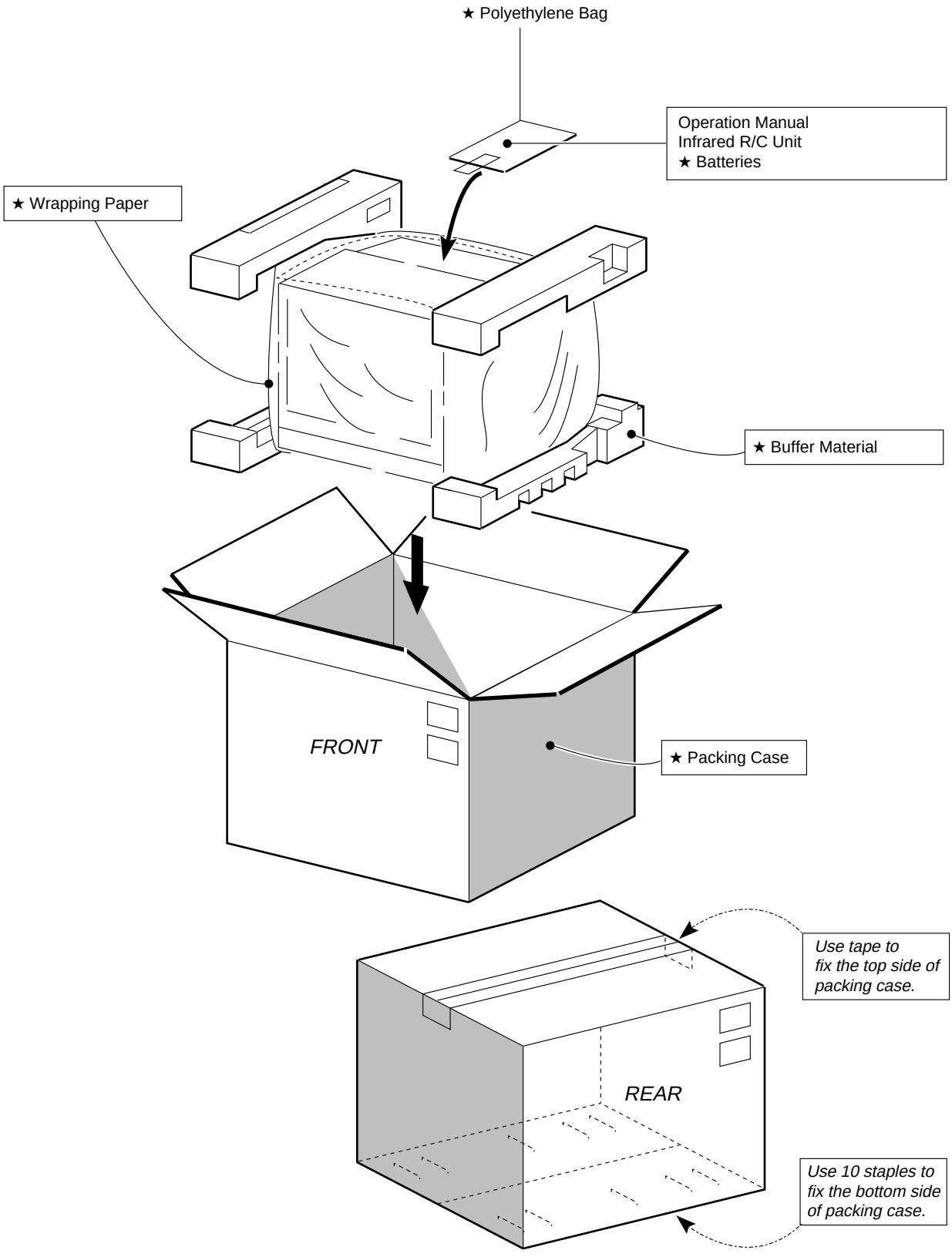
CABINET PARTS

Ref. No.	Part No.	★	Description	Code
1	CCABAA323WEJ4	X	CAB-A ASSY	BE
1-1	Not Available	—	Front Cabinet	
1-2	HBDGB3155CESA	X	Badge, "SHARP"	AE
1-3	HDECQA119WJSA	X	LED, R/C Cover	AD
1-4	JBTN-A070WJKC	X	Button, Power	AE
1-5	MSPRC0005PEFW	X	Power Button Spring	AA
1-6	GDORFA015WJKC	X	Door	AF
1-7	MSPRPA012WJFW	X	Door Spring	AB
1-8	HINDPA194WJSA	X	Indication Plate	AD
1-9	GBFL-A007WJZZ	X	Speaker Baffle	AE
2	GCABBA088WJKA	X	REAR CABINET	BB

CABINET PARTS LOCATION



PACKING OF THE SET



★ MARK : Not replacement items.

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